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North American Hesperidae.

By HENRY SKINNER, M.D.

Pamphila hobomok was described by Dr. Harris in 1862, since which time it has been confused with *zabulon* by a number of authors. Students have had so much trouble with these species that I thought it desirable to show them side by side. *Hobomok* has two females; a yellow tawny one like the male, and a black one (*pocahontas*), whereas *zabulon* has but one kind of female, and that is black or dark brown. Yellow females of *zabulon* have been mentioned and described, but I have never seen one in a collecting experience of twenty-five years. I have also examined all the large collections of the country excepting one. If any person can send me a yellow female *zabulon* I will be greatly indebted; *zabulon* is decidedly the smaller species of the two and lacks the pronounced black nervures of the other. The golden spots on the *zabulon* female are much more sharply defined, and on the underside it is much brighter and has a pronounced purple color. Mr. Philip Laurent has frequently reared these two species and found them abundantly distinct. With the aid of the figures no one can

fail to readily separate these two species. *Pamphila scudderi* was described in ENT. NEWS, Vol. x, p. 111, and was taken along the White River in Colorado, between July 24th and Aug. 13th, by Dr. S. H. Scudder, who has a good series of the species.

Pamphila bellus was described by Mr. W. H. Edwards in 1884, and has been very rare in collections. During the past Summer it was taken in abundance in the Huachuca Mts., Cochise Co., Arizona. It is a rather handsome and interesting species.

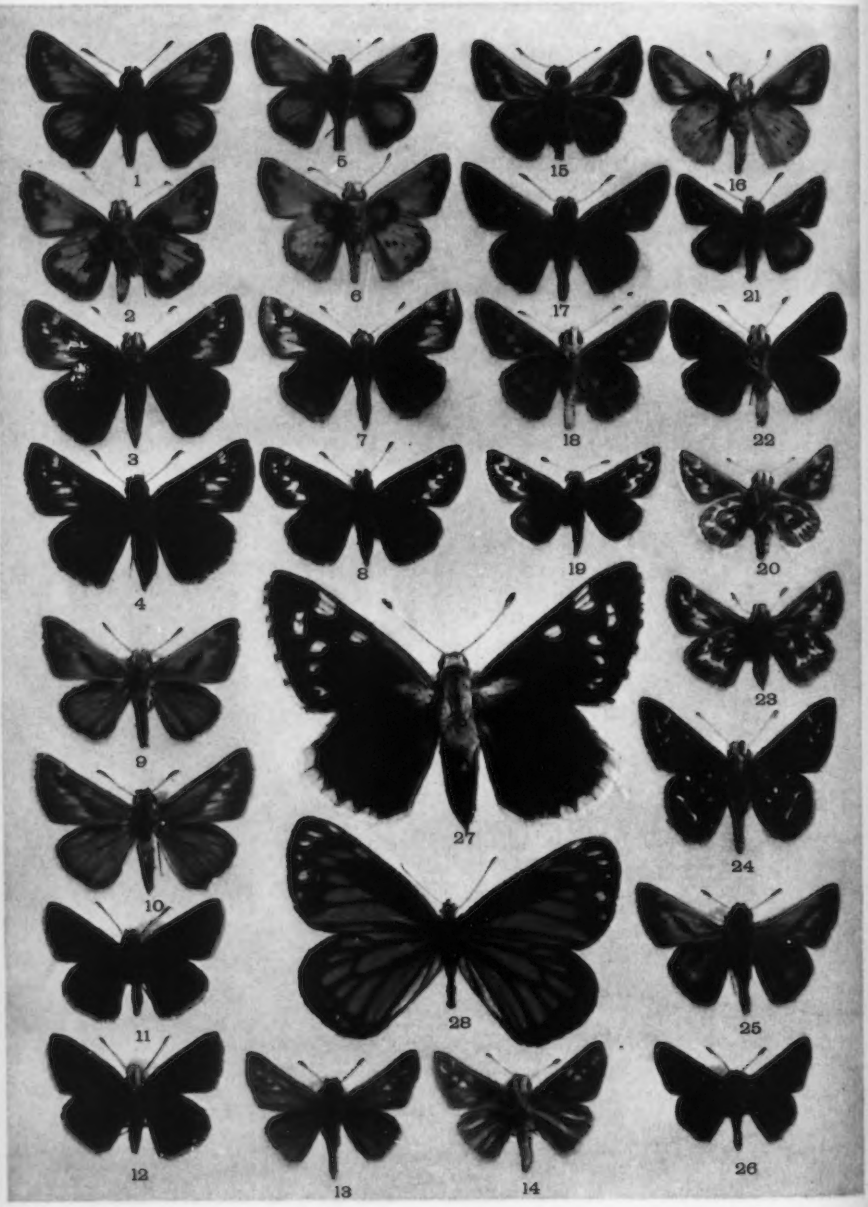
Pamphila panoquin is found in great abundance along the Jersey coast in Cape May County, where the members of the Feldman Social succeed in getting nice specimens annually.

Pamphila panoquinoides is smaller and darker than *panoquin* and lacks the spots on the fore wings. Below it resembles *panoquin* in the character of the maculation. *Pamphila stigma* is a very distinct species. It is found in Texas and New Mexico and probably also in Central and South America. *Pamphila pittacus* has only been found in Arizona, as far as I am aware. *Pamphila nemorum* has a very characteristic stigma and immaculate secondaries beneath. It is common in the Yosemite Valley in California.

Pamphila rhesus is a very handsome Colorado species and is not uncommon.

Pamphila massasoit suffusa is readily known by the obliteration of the yellow in the secondaries below. The types came from Westville, New Jersey.

Pamphila draco is a very distinct butterfly but is often incorrectly named. The country was flooded with this species sent from Colorado under the name of *manitoba* some years ago. *P. loammi* is a rather rare and fine Florida species. I have also had it from Wilmington, N. C. The figure of *P. alcina* represents the type of the male. When more material is at hand and proper comparisons made it is not unlikely that this may prove a synomyn of *rhena* Edwards. *Ægiale streckeri* is a very fine insect and has been found in Colorado, Texas and Arizona. Mr. E. J. Oslar during last Summer found them in numbers in S. W. Colorado, and has given an interesting account of their habits in a paper to appear in the NEWS. The yellow spots on the female are about twice the size of those on the fore wings on the male. The female is also several shades



ENT. NEWS, Vol. XI. Pl. II.

HESPERIDÆ AND ONE PIERID.

BY THE THREE-COLOR PROCESS.

lighter in color and lacks the long hair on the hind wings, which is such a prominent character in the male. *Archonias lyceas* was taken in Cochise Co., Arizona, and the specimen figured was sent to me for identification by Mr. O. C. Poling, who very kindly permitted me to retain it for some weeks so that the NEWS family might have the pleasure of seeing it also. It looks somewhat like a little *Danais*, but belongs to the *Pieridæ*. Dr. Barnes also sent me a specimen for indentification along with a lot of other extra faunal species mentioned in his paper in the January NEWS. *Lyceas* was described in the Biological Centrali-Americana, Rhop., Vol. ii, p. 123, August, 1889. Two male specimens are mentioned by Messrs. Godman and Salvin from Bugaba.

DESCRIPTION OF PLATE.

Fig. 1. *Pamphila hobomok* Harris, ♂, upperside.
Fig. 2. " " " " underside.
Fig. 3. " " " ♀, "
Fig. 4. " " " " upperside.
Fig. 5. *Pamphila zabulon* Bdl. Lec ♂, upperside.
Fig. 6. " " " " underside.
Fig. 7. " " " ♀, "
Fig. 8. " " " " upperside.
Fig. 9. " *scudderi* Skinner, ♂, " (type).
Fig. 10. " " " ♀ " (type).
Fig. 11. " *bellus* Edwards ♂, "
Fig. 12. " " " ♂, underside.
Fig. 13. " *panoquin* Scudder ♂, upperside.
Fig. 14. " " " " underside.
Fig. 15. " *stigma* Skinner ♂, upperside, (co-type).
Fig. 16. " " " " underside.
Fig. 17. " *pittacus* Edwards ♂, upperside.
Fig. 18. " " " " underside.
Fig. 19. " *rhesus* " " upperside.
Fig. 20. " " " " underside.
Fig. 21. " *nemorum* Boisduval ♂, upperside.
Fig. 22. " *massasoit* var. *suffusa* Laurent ♂, underside.
Fig. 23. " *draco* Edwards ♀, underside.
Fig. 24. " *loammi* Worthington ♂, underside.
Fig. 25. " *alcina* Skinner ♂, upperside (type).
Fig. 26. " *panoquinoides* Skinner ♂ upperside (type).
Fig. 27. *Ægiale streckeri* Skinner ♂, upperside.
Fig. 28. *Archonias lyceas* Godman and Salvin, upperside.

ALASKA INSECTS.

By W. J. Holland, L.L.D.

PART II.

Family LYCÆNIDÆ.

Genus **LYCÆNA** Fabricius.

24. **L. sæpiolus** Bdv.

1 ♂, Fort Selkirk, N. W. Territory, June 28. (Young.)

25. **L. afra** Edwards.

1 ♂, Tagish Lake, B. C., June 21 (Koonce); 1 ♂, White Horse, N. W. Territory, June 24 (Young); ♂ ♂, Lake Labarge, N. W. Territory, June 27 (Young).

26. **L.** sp.?

I have a number of specimens of a form which is near *L. afra* Edw., and yet still nearer to *L. lygdamas* Doubleday, which puzzle me. They are not exactly referable to either species. They may represent a boreal race of *L. lygdamas*, but I am in doubt, and therefore withhold further comment.

27. **L. lotis** Lintner.

This species was originally described from Mendocino, California. The specimens probably came from Mt. Shasta. It appears to be common in Alaska.

25 ♂ ♂, 9 ♀, Eagle City, Alaska, July 8–14. (Young.)

28. **L. yukona** sp. nov.

♂—Wings on the upper side uniformly dark purplish violet, the outer margin of both wings marked by a very narrow brown line, the fringes whitish. On the under side the wings are obscure ashen-gray, both wings at the base obscured by bluish gray scales. The primaries have a discal mark at the end of the cell surrounded by a light whitish circle. Beyond this there is a transverse line of discal spots, six in number, gradually increasing in size from the costa to the inner margin, the spot nearest the inner margin being double. Beyond this along the margin is an even row of fine narrow dark linear spots, succeeded inwardly by a corresponding series of heavier sagittate markings, the points turned toward the base. The secondaries are marked by three small black spots near the base, arranged in a straight series, one above the cell, one on the cell, and one about the middle of the inner margin. At the end of the cell is a transverse linear dark spot margined with white; beyond this a curved limbal series of black spots margined with white; the upper five spots forming an evenly curved series beyond the cell, the sixth, which is a double spot,

being near the inner margin and nearer the anal angle than the last of the series of five. The marginal series of fine narrow lines surmounted by darker sagittate markings, which appears on the primaries, is repeated on the secondaries, the spots growing larger and more distinct toward the anal angle. Between the first and second median nervules, between the outer spot and the inner sagittate spot, there is a red spot. The abdomen on the under side is white; on the upper side the body is fuscous tinged with bluish. The legs are bluish gray.

♀—The wings on the upper side are fuscous, with the primaries on the costa near the base and the secondaries in the region of the cell shot with purplish violet. On the under side the female is marked like the male, but with all the spots larger and heavier.

Expanse ♂, 22 mm.; ♀, 24 mm.

4 ♂ ♂, 1 ♀, Mountains between Mission and Forty-mile Creeks, N. E. Alaska, July 20–24. (Young.)

I have hesitated to add another species to the list of North American Lycænidæ, but after carefully examining all the collections which are available, and having read up the entire literature on the subject, I am convinced we are dealing here with an undescribed form. I possess the types or cotypes of almost all the species attributed to our fauna, with the exception of *L. amica*, *L. pembina*, *L. ardea* and *L. kodiak*, species described by Mr. Edwards, but the types of which were not contained in his collection at the time I purchased the same. I had hoped that the insect above described was one or the other of these, but after carefully going over the published descriptions with the insect before me, in which work I was aided by Dr. Skinner, it has been impossible for me to believe that I was in any case justified in regarding the insect before me as having been already described by Edwards.

29. **L. pseudargiolus** var **lucia** Kirby.

2 ♂ ♂, Skaguay, May 24, 3 ♂ ♂; Skaguay, June 12. (Young.)

Family PAPILIONIDÆ.

Sub-family PIERINÆ.

Genus **PIERIS** Schrank.

30. **P. nelsoni** Edw.

The male of this species has been described and beautifully figured by Edwards, Butterflies of North America, Vol. II, Plate 1, of Pieris. The type, a male, came from St. Michael's,

Alaska. The solitary specimen taken by Mr. Young happens to be a female in excellent, in fact, perfect condition. The female does not differ from the male in the disposition of the markings on both sides of the wings, but they are all much heavier, especially on the under side of the secondaries, where the veins are all heavily bordered on each side by grayish green. The species, as has already been pointed out by Edwards, is near to *P. callidice* Esper, but quite distinct.

♀, White Horse, N. W. Territory, June 24. (Young.)

41. **P. napi** var **bryoniæ** Ochsenheimer.

The collection contains three females taken at Skaguay, June 12, which are remarkably dark.

32. **P. napi** var **hulda** Edw.

This is the prevalent form of the species in the interior. I find thirty-four males and seventeen females in the collection coming from Eagle City and American Creek, Alaska, with a couple of specimens taken at Fort Selkirk, all taken in July.

Genus **EUCHLOË** Hübner.

33. **E. ausonides**, Bdv.

Six specimens, White Horse, N. W. Territory, June 24; 2 specimens, Fort Selkirk, N. W. Territory, June 28; 1 specimen, near Dawson, N. W. Territory, July 1. (Young.)

Genus **COLIAS** Fabricius.

34. **C. hecla** Lef.

There are two female specimens which I refer to this species, agreeing fairly well with specimens I have under this name from Greenland.

35. **C. chione** Curtis (?)

There is a solitary orange yellow specimen in the collection which corresponds almost exactly with the figure of *C. chione* given by Curtis in the appendix to Ross' Expedition. In the absence of more material I cannot be quite positive as to the correctness of the determination.

36. **C. chippewa** Edwards.

There are twelve males and four females agreeing exactly with the types of *C. chippewa* in the Edwards collection and

showing very little if any variation. Skinner sinks *chippewa* as a synonym for *G. palaeno* Linn., but with a suite of nearly forty specimens of *C. palaeno* before me from various localities in Europe and Asia, I can at a glance separate the specimens from Alaska. On the upper side the dark marginal band of the males is much narrower, and the specimens are smaller. The females on this side are almost without any dark margin, resembling in this the females of *C. scudderi*. On the under side of the wings they are quite different from *C. palaeno*, one marked feature being the light-colored ray which runs from the discal spot of the secondaries toward the base, through the darker grayish green ground color of the wings. If *C. chippewa* Edw. is not a good species, it is at all events a very strongly marked varietal form, which, when known, is not easily mistaken.

37. **C. nastes** Bdv.

1 ♂, 1 ♀, Mountains between Mission and Forty-mile Creeks, N. E. Alaska, July 20. (Young.)

Sub-family PAPILIONIÆ.

Genius **PARNASSIUS** Latreille.

38. **P. eversmanni** Ménétriés.

9 ♂ ♂, 1 ♀, Mountains between Mission and Forty-mile Creeks, N. E. Alaska, July 20–24. (Young.)

Genus **PAPILIO** Linnæus.

39. **P. machaon** var **aliaska** Scudder.

1 ♂, Eagle City, Alaska, July 8; 5 ♂ ♂, Mountains between Forty-mile and Mission Creeks, July 20–24. (Young.)

40. **P. turnus** Linn.

The collection contains numerous examples, mostly in bad condition, of the small Alaskan form in which there is a considerable range of variation in size and in color. One female is decidely dark, showing a tendency toward melanism. Some of the males are abnormally light, and three examples have the ground-color of the wings whitish, almost as light as in *P. eurymedon*. The specimens, twenty-one in number, were mostly taken at White Horse, N. W. Territory and Eagle City, Alaska.

Family HESPERIDÆ.

Genus **THANAOS** Boisduval.

41. **T. persius** Scud.

The collection contains one dwarfed specimen of this species, taken at Fort Selkirk by Young, June 25.

HETEROCERA.

Family AGARISTIDÆ.

Genus **ALYPIA** Hübner.

42. **A. sacramenti** Grote and Robinson.

1 ♂, 1 ♀, Skaguay, June 15. (Young.)

NOCTUINA.

Genus **EUCOPTOCNEMIS** Grote.

43. **E. staudingeri** Moeschler.

1 ♂, Mountains between Mission and Forty-mile Creeks, July 20. (Young.)

I am indebted to Prof. J. B. Smith for this determination.

Genus **PLUSIA** Fabricius.

44. **P. californica** Speyer.

♂, Rampart, Alaska, August 6. (Young.)

45. **P. octoscripta** Sanborn.

1 ♀, Rampart, Alaska, August 6. (Young.)

Genus **DRASTERIA** Hüner.

46. **D. distincta** Numoegen.

1 ♂, Mountains between Mission and Forty-mile Creeks, Alaska, July 21. (Young.)

Genus **SYNEDA** Guenée.

47. **S. hudsonica** Grote and Robinson.

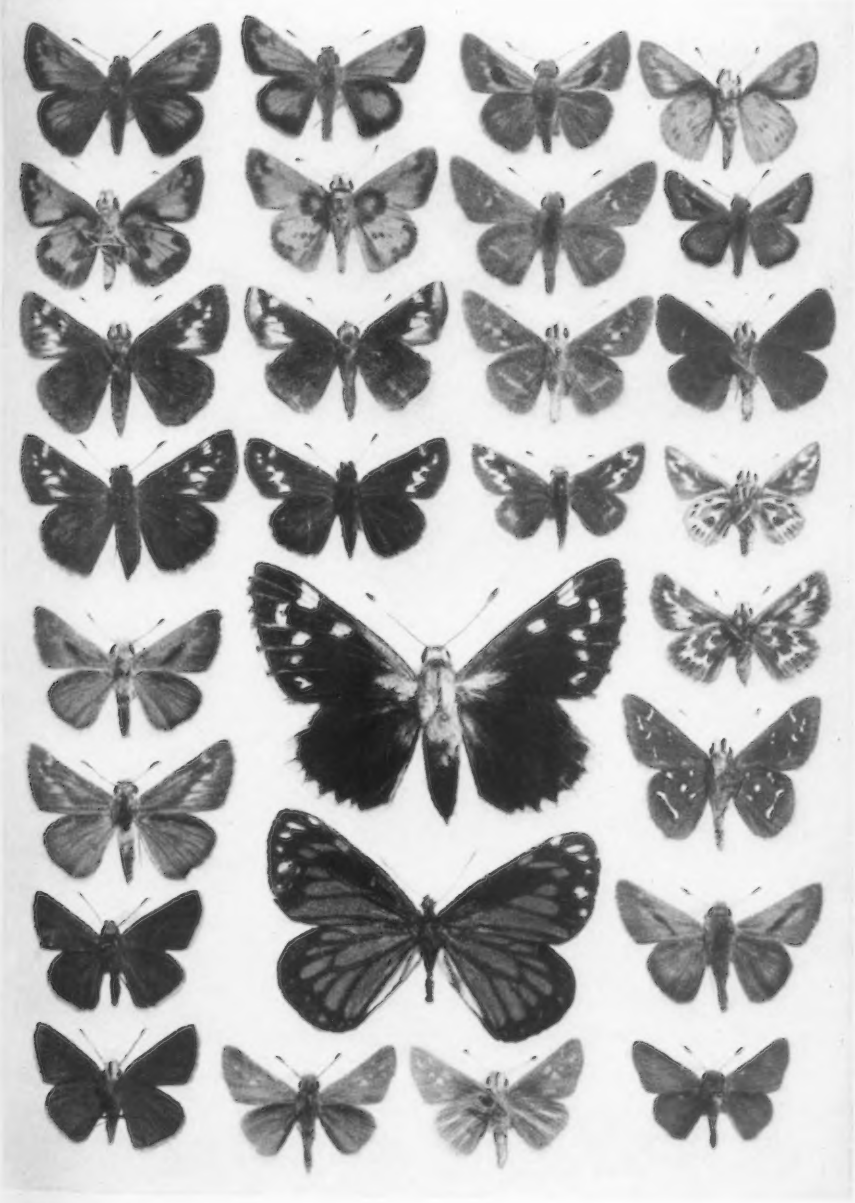
1 ♂, Tagish Lake, June 21. (Koonce.)

GEOMETRINA.

Genus **GEOMETRA** Linnæus.

48. **G.** sp.?

One poor example, faded and rubbed, Eagle City, July 8. (Young.)



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Genus **ACIDALIA** Treitschke.

49. **A.** sp.?

Seems to be near *A. frigidaria* Moeschler, but does not entirely agree with the description or the figure.

1 ♂, Eagle City, July 8. (Young.)

50. **A.** sp.?

1 ♂, Fort Selkirk, June 28. (Young.)

Genus **SEMIOTHISA** Hübner.

51. **S. granitata** Guenée.

1 ♂, Tagish Lake, June 21. (Koonce.)

52. **S. bisignata** Walker.

1 ♀, Skaguay, June 12. (Young.)

Genus **MARMOPTERYX** Packard.

53. **M.** sp.?

There is a specimen of this species without a name in the collection of the U. S. National Museum, labeled "Alaska." It may be undescribed.

1 ♂, White Horse, N. W. Territory, June 24. (Young.)

Genus **PIDONIA** Treitschke.

54. **P. truncataria** Walker.

1 ♂, White Horse, N. W. Territory, June 24; 1 ♀, Lake Labarge, N. W. Territory, June 17. (Young.)

Genus **BAPTRIA** Hübner.

55. **B. albovittata** Guenée.

3 ♂♂, 2 ♀♀, Skaguay, June 13. (Young.)

Genus **LOBOPHORA** Curtis.

56. **L. montanata** Packrad

5 ♂♂, mostly poor specimens, White Horse, N. W. Territory, June 24. (Young.)

Genus **RHEUMAPTERA** Hübner.

57. **R. lugubrata** Staudinger.

4 ♂♂, 2 ♀♀, Lake Labarge, N. W. Territory, June 27. (Young.)

58. **R. hastata** Linnæus.

Twenty-six specimens, ♂♂ and ♀♀, taken all points where collections were made, and showing various varietal modifications.

Genus **OCHYRIA** Hübner.

59. **O. ferrugata** Linnæus.

Several specimens, Fort Selkirk, N. W. Territory, June 24. (Young.)

60. **O. designata?** Hübner.

Three specimens, Eagle City, Alaska, July 8. (Young.)

61. Gen.? sp.?

One example, Eagle City, July 8. (Young.)

62. Gen.? sp.?

One rubbed example, Skaguay, June 12. (Young.)

63. Gen.? sp.?

One example, Fort Selkirk, N. W. Territory, June 28. (Young.)

The three foregoing species I have been unable to determine. They are not found in the collections in Philadelphia and Washington, and I have not been able to make them out with the help of the literature of the subject. They are possibly new to science.

COLEOPTERA.

Family BURPRESTIDÆ.

Genus **DICERCA** Esch.

64. **D. prolongata** Leconte.

Two examples, Dawson, N. W. Territory, July 4. (Koonce.)

65. **D. tenebrosa** Kirby.

One example, Dawson, N. W. Territory, July 4. (Koonce.)

Genus **MELANOPHILA** Esch.

66. **M. longipes** Say.

Two specimens, Dawson, N. W. Territory, July 4. (Koonce.)

Family CLERIDÆ.

Genus **THANASIMUS** Latr.

67. **T. nubilus** Klg.

One specimen, Dawson, N. W. Territory, July 4. (Koonce.)

Family CERAMBYCIDÆ.

Genus **XYLOTRECHUS** Chevr.

68. **X. nauticus** Mann.

One specimen from Dawson, N. W. Territory, July 4; 1 specimen from Eagle City, Alaska, July 12. (Koonce.)

Genus **PACHYTA** Serv.

69. **P. liturata** Kirby.

One specimen, Eagle City, Alaska, July 12. (Koonce.)

Genus **ACMÆOPS** Leconte.

70. **A. proteus** Kirby.

Three examples, Dawson, N. W. Territory, July 4; 1 example, Eagle City, Alaska, July 13. (Koonce.)

Genus **LEPTURA** Serv.

71. **L. quadrillum** Lec.

One specimen, N. W. Territory, July 4; 1 specimen, Eagle City, Alaska, July 12. (Koonce.)

HYMENOPTERA.

Family APIDÆ.

Genus **BOMBUS** Fabr.

72. **B. frigidus** Smith.

73. **B.** sp? a var. of **B. howardi?**

Family ICHNEUMONIDÆ.

74. Gen? sp?

I am indebted to Mr. W. J. Fox for the identification of the Hymenoptera.

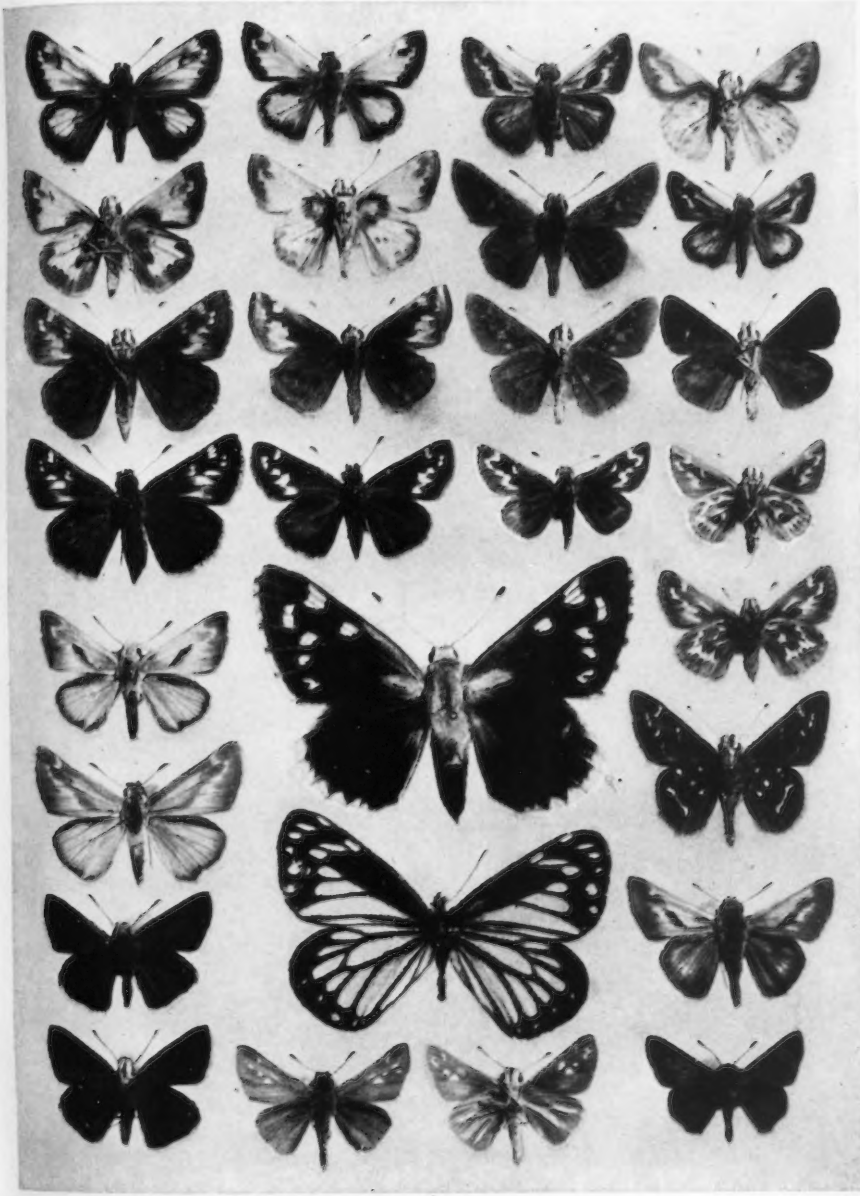
On the Genus Hypocharassus, Mik.

By WILLIAM MORTON WHEELER, University of Texas.

In the first volume of the *Zoological Bulletin* I described two Diptera* which presented certain peculiarities, mainly in the structure of the antennæ, that seemed to warrant the erection of a new genus. This genus was called *Drepanomyia*. A recent study of Prof. Mik's contributions to dipterology convinces me that one of my species, described under the name of *D. Johnsonii*, was described by Mik some twenty years ago as *Hypocharassus gladiator*.† Like myself Mik had only a male specimen, and like myself he recognized in it the type of a new Dolichopodid genus quite distinct from any of the known

* A new genus of Dolichopodidæ from Florida. Zool. Bull., Vol. I, No. 5, February, 1898, pp. 217–220.

† Mik. J., Dipterologische Beiträge, II Hypocharassus gladiator, eine Neue Dolichopodiden. Art aus America. Verhand. Zool. Bot. Gesell., Wien., Bd. XXVII, pp. 627–623., Taf. X, 1878.



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BLUE.

genera. In my description of the species the face is incorrectly described as not descending below the corners of the eyes, a statement which is contradicted by my figures. Mik is in error in giving four instead of six scutellar bristles in his succinct generic and very detailed specific diagnoses.

The other species described by me as *Drepanomyia pruniosa* was unknown to Mik and is undoubtedly new. It must now be known as *Hypocharassus pruniosus*. It is the more striking of the two species, as the peculiar lobe-like projection on the base of the third antennal joint is very prominent. This species, too, was described from a single male specimen from Florida. During the past summer while collecting diptera at Woods Holl, Mass., I was fortunate enough to encounter both sexes of this remarkable fly in considerable numbers, so that I am able to add some data on the hitherto unknown female of *Hypocharassus* and on the habits of one of the species.

Mik predicted that the female would differ very slightly from the male, and such proves to be the case. In *H. pruniosus* there is no difference in the size and structure of the antennæ. The fore pulvilli are somewhat larger in the male than the middle and hind pairs; in the female all the pulvilli are of about the same size. In the coloring of the legs, however, there is marked sexual difference; all the femora in the females in my possession (seven specimens) being yellow, whereas the three males captured during the past summer and the type of the species, now in the collection of Mr. C. W. Johnson, have the femora more or less dull metallic green dusted with white. The abdomen of the female is broader than that of the male, and compressed dorsoventrally. It has six distinct and a seventh more or less apparent segment. The ovipositor is short, blunt and of a deep black color.

The great similarity of the sexes and of the two species of *Hypocharassus* adds to the validity of the genus which Mik places between the *Hydrophorus* and *Machærium*, representatives of which have not yet been found in America. It is more closely related to the latter genus, although it undoubtedly resembles *Diostracus* in the large size of the palpi and *Thinophilus* in general appearance.

H. pruniosus was observed from July 21st to August 3d of the past Summer. It occurred in small swarms along the shores of Buzzards Bay between the "neck" at Woods Holl and Quisset Harbor. The insects ran about between tides on the wet sand and over the barnacle-coated rocks or flew about in the "thatch-grass," often in the spray of the breakers. Their flight was peculiar and unlike that of any Dolichopodid known to me, being very rapid and in straight lines for a little over a yard at a stretch. Their wings, which have the appearance of ground glass, render them quite conspicuous, so that I could sometimes capture them on the wing. Like the species of *Hydrophorus* they are not easily captured while running.

It thus appears that *Hypocharassus*, so far as its habits are concerned, is to be placed with the maritime Dolichopodid, genera *Thinophilus*, *Aphrosylus*, *Machærium* and *Epithalassius*, an interesting genus described by Mik.* I believe that the larva of the *Hypocharassus* lives in the salt water like that of *Aphrosylus*† for one of the females of *H. pruinosus* captured by me at low water mark was still soft and had evidently just emerged from its pupa.

ASPIDIOTUS DIFFINIS.

Another Scale Insect of Probable European Origin Recently Found in North America.

By C. L. MARLATT, Washington, D. C.

The species named above was described by Mr. Robert Newstead (*Entomological Monthly Magazine*, volume XXIX, August, 1893, pages 186–187) as *Aspidiotus affinis* from the material on an undetermined woody plant sent by a correspondent from the Botanical Garden of Demerara, British Guiana. The material had been sent to Mr. J. W. Douglas during the preceding year, and handed by the latter to Mr. Newstead for study. Later (l. c. page 281), December, 1893, Mr. Newstead corrected the name from *affinis* to *diffinis*, the former name

* Mik, Jos., Epithalassius sancti marci, ein neues Dipteron aus Venedig. Wien. Ent. Zeitung, 10. Jahrg., 5. Heft., 12. Juni, 1891, pp. 186–187, and Mik. Jos., Vorläufige Notiz über Epithalassius Blasigii, ein neues Dipteron aus Venedig., ibid 31, Juli, 1891, pp. 216-217.

† See Wheeler, W. M., A Genus of Maritime Dolichopodidae New to America, Proceed Cala. Acad. Science, 3rd ser., Zool., Vol. I, No. 4, 1897, pp. 145–152., Pl. IV.

being preoccupied by a species described by Targioni-Tozzetti, and now known to be a synonym of *A. hederæ* Vall. *Aspidiotus diffinis* belongs to the group containing *A. camelliæ* Boisd., the greedy scale, to which it is closely allied.

In 1899 a basswood scale was received from Mr. John Dearness, London, Canada, and a study of this material led the writer to discover that it was identical in every way with the species described by Newstead referred to above. At the same time it was found that a scale insect which for a number of years, since 1894 in fact, had thickly infested a lilac bush on the Department grounds and which was thought by Mr. Pergande, who first noticed it, to be an undescribed species, also belonged to Mr. Newstead's species.

Further examination of the Department material demonstrated that the species described by Townsend and Cockerell as *Aspidiotus jatrophæ*, (N. Y. Ent. Soc., Vol. VI, p. 178, 1898) must also be referred to the same insect. The type material of the last was represented by a scale insect occurring on Jatropha, a cultivated plant whose green juicy stems are cooked for food, collected in Frontera, Tabasco, Mexico, by Mr. C. H. T. Townsend, March 27, 1897.

Belonging to the same species, also, is the material collected by Mr. Townsend, June 9, 1897, at the same locality in Mexico, on "Barenjeno chiquito," and determined by Professor Cockerell as probably a variety of *jatrophæ*.

This record shows a wide range of distribution and also of food plants. In this country, however, the species has evidently been introduced only in a few localities, judging from the paucity of records of occurrence. Its range in latitude is very notable, but its most northern locality, Ontario, is not so significant when it is remembered that the lower districts of this province include both Upper Austral and Transition life zones.

It is evidently an insect which is capable of very serious multiplication, judging from the thick infestation of the bark in the specimens received. In Ontario it seems to have spread into the woods and infests the basswood, *Tilia americana*, quite generally in some districts,—some half dozen lots of infested

material having been sent to this office for determination by Mr. John Dearness and Professor William Lochhead. The lilac bush on the Department grounds is as thickly infested as it is possible for a plant to be with a scale insect: and the injury to it has been considerable, many of the shoots having been much weakened or killed.

It is possible that the specimens from British Guiana are also on lilac, although the fragement of wood received does make accurate determination possible. If lilac should prove to be a common food plant, this fact would easily explain its distribution in this country.

The following bibliography of the species will indicate also the synonymy:

Aspidiotus affinis, Newst.—Ent. Mo. Mag., vol. xxix, p. 186, pl. iii, fig. 2, 1893.

Aspidiotus diffinis, Newst.—Ent. N. Mag., vol. xxix, p, 281, 1893.

Aspidiotus affinis (*diffinis*), Ckll.—Can. Ent., 1894, p. 130.

* *Aspidiotus diffinis*, Newst. *var. lateralis* Ckll. new var. Can. Ent., 1894, p. 130.

Aspidiotus (*Diaspidiotus*) *diffinis* Ckll.—Bull. 6, Tech. Ser. Div. Ent. U. S. D. A., 1897, p. 23.

* *Aspiditous* (*Diaspidiotus*) *diffinis, var. lateralis* Ckll.—Bull. 6, Tech. Ser., Div. Ent., U. S. D. A., 1897, p. 23.

Hemiberlesia diffinis, Leonardi.—Rivesta Pat. Veg., vi, 132–134, 1897, fig. 8.

Aspidiotus jatrophæ, Townsend & Cockerell.—Journ. N. Y. Ent. Soc., vol. vi, p. 178, 1898.

THE ENTOMOLOGISTS DIRECTORY has been completed, and contains the names (1200) and addresses of all those persons who showed sufficient interest to send in their names in answer to our circulars. This publication can not fail to prove exceedingly useful to every individual who takes an active interest in entomology. Those persons who exchange specimens will find it just what they have long desired. Copies may be obtained from Mr. E. T. Cresson, P. O. Box 248, Philadelphia. Price 50 cents.

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* As shown elsewhere by the writer, this so-called variety of *diffinis*, was based on immature scales of *Aspidiotus latania* Sign. and these citations belong also with the latter species.

Description of Papilio Electryon.

By O. W. BARRETT, Tacubaya, Mexico.

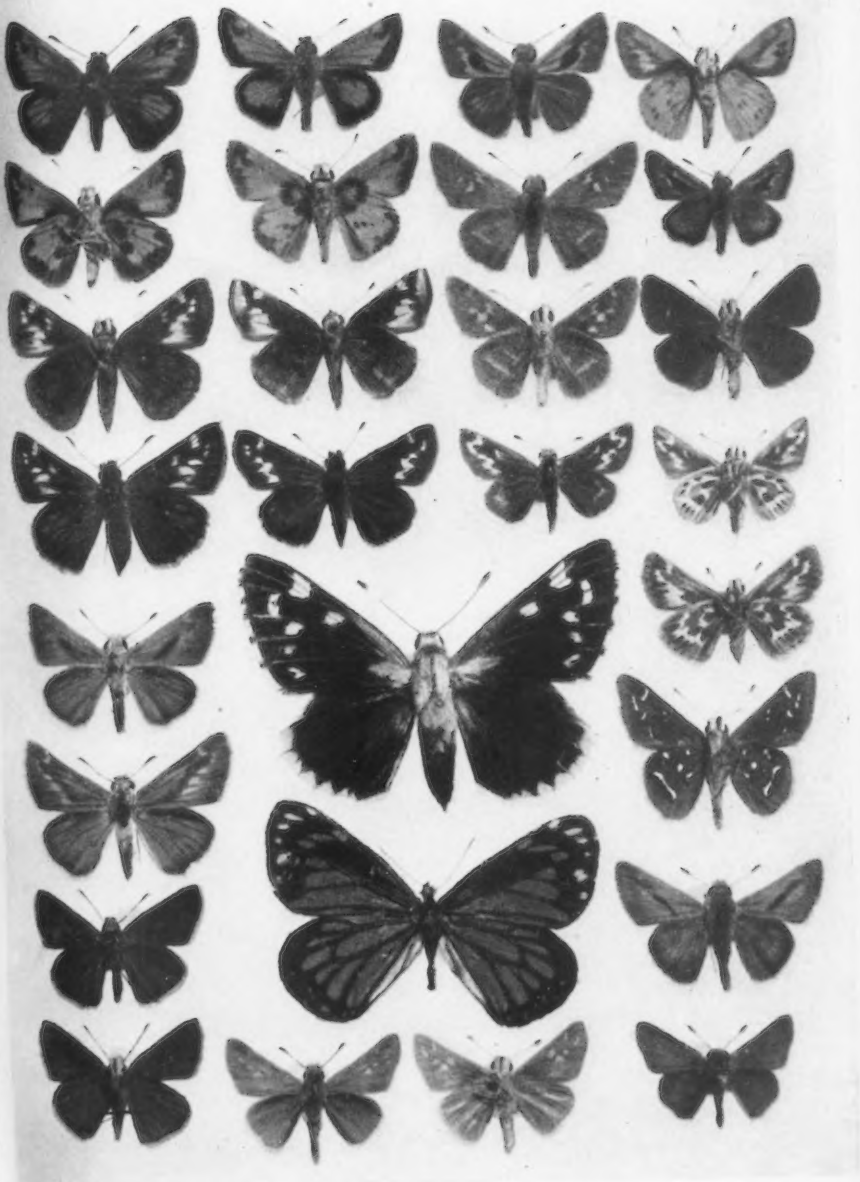
Being unable to find a recorded description of the female of *P. electryon* G. & S., I herewith submit the following :

P. electryon G. & S. ♀.—Wings more dusky and primaries less produced at apex than in ♂; primaries above with apical band composed of eight isolated yellowish spots, bent near middle of outer margin at an angle of 110 degrees, and continued to posterior angle ; sub-parallel to apical row is a discal row of seven obscure olivaceous patches ; no trace of common yellow band of ♂ : secondaries with submarginal row of seven flat, thick, rufous lunules, the two nearest apical angle reduced to yellowish patches and the one at anal angle a round spot ; the discal row of six glaucous patches of same position as in ♂ but more distinct ; inside the glaucous row and well beyond the end of the cell a band of seven rufous lunules extends from the costa to inner margin,—the lunules being appressed, or U-shaped, and separated by the black veins, those near anal angle being thickened, whereas the one at the costa is a curved dash suffused with buff scales. Primaries beneath with two rows of spots as above ; the apex paler ; the luteous dash on the costa as in ♂ ; and the extremities of the broad yellow band of ♂ represented by an obscure olivaceous cloud in the cell near the costa, and another on the inner margin near posterior angle : secondaries fuscous beneath ; lunules as above, except that those of the inner band are of a nearly even thickness throughout ; the glaucous patches are replaced by olivaceous clouds edged with pale blue on the inner side and separated from the rufous lunules by deep black lunulate patches. Fringe between veins whitish. Caudate appendages wider than in ♂. Expanse 110 mm.

Described from one female specimen from Orizaba, V. C., Mexico.

Readily distinguished from melanic ♀ of *P. asclepius* Hbn. by the presence of the row of olivaceous patches on primaries and by the apical row of spots reaching posterior angle, being bent at lesser angle, and containing three isolated spots (not four broad dashes) in its first portion ; also by the shape, color and position of lunules on secondaries.

Have never seen a specimen of *P. asclepuis* Hbn. from the Eastern Slope of Mexico, nor a specimen of *P. electryon* G. & S. from the Central or Western regions. Doubt has been expressed as to the non-identity of these species, but the ♁ ♁ as well as ♀ ♀ show differences as striking as those of *P. pilumnus* Bdv. and *P. daunus* Bdv.



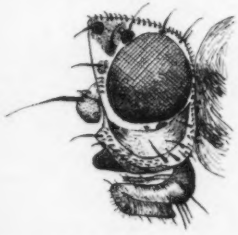
YELLOW AND RED.

Two New Genera of Diptera.

By D. W. COQUILETT.

Hesperodes n. gen. Mycetophilidæ.

Near *Hesperinus*, but the third and fourth veins united for a short distance, crowding out the small cross vein, as in *Platyura*. Auxiliary vein ending in the costa beyond the base of the third vein, subcostal cross vein nearly midway between the humeral and base of the third vein, the latter forked beyond the apex of the first vein; fourth vein originating from the fifth near its base and just before the union with the third connected by a cross vein with the upper branch of the fifth, forking a short distance beyond the union with the third vein; fifth vein forking midway between the base of the third vein and its union with the fourth; sixth vein prolonged to the wing margin; antennæ about twice as long as the head and thorax united, cylindrical but tapering to the apex, 16-jointed,



Traginops irrorata.

the first joint as broad as long, the second twice as broad as long, and the others twice as long as broad; proboscis very robust, shorter than height of head, palpi 4-jointed, eyes emarginate opposite the antennæ, ocelli wanting, abdomen slender, more than three times as long as the thorax.

Type, the following species:

Hesperodes johnsoni, n. sp.

Reddish yellow, antennæ and tarsi beyond the base changing to brown, legs destitute of strong lateral bristles, tibial spurs well developed; wings yellowish, becoming grayish hyaline on the posterior margin and at the apex, a brown spot at apex of the first vein.

Length 12 mm.

Delaware Water Gap, N. J., a male specimen collected July 12, 1899, by Mr. C. W. Johnson, after whom the species is named. Type No. 4391, U. S. Nat. Museum.

Traginops n. gen. Agromyzidæ.

Apparently nearest related to *Milichia*. Occiput on its upper part strongly produced forward in the middle, the middle of the front nearly perpendicular, almost on a line with the face, the latter strongly produced forward on its lower part, vibrissæ well developed, clypeus strongly

projecting, cheeks about two-thirds as wide as the eye-height, eyes nearly circular, bare; proboscis robust, fleshy, palpi slender; antennæ shorter than the face, the third joint oval, broader than long, arista dorsal, bare; three ocilli present, ocellar prominence unusually large, ocellar and post-vertical bristles present, two pairs of vertical and three of fronto-orbital bristles (see the accompanying figures); body robust, abdomen less than twice as long as wide, shorter than the thorax; auxiliary vein distinct at its base but toward its apex uniting with the first vein, apex of third vein midway between the apices of the second and fourth, the latter slightly converging toward the third at its apex, hind cross vein situated beyond the last third of the length of the wing, small cross vein at the last fourth of the length of the discal cell, penultimate section of the fourth vein about one-third as long as the ultimate section; sixth vein not reaching the wing margin; the two basal and anal cells complete; pre-apical tibial bristle present, but small; legs otherwise destitute of bristles except near the upper and the under sides of the front femora.

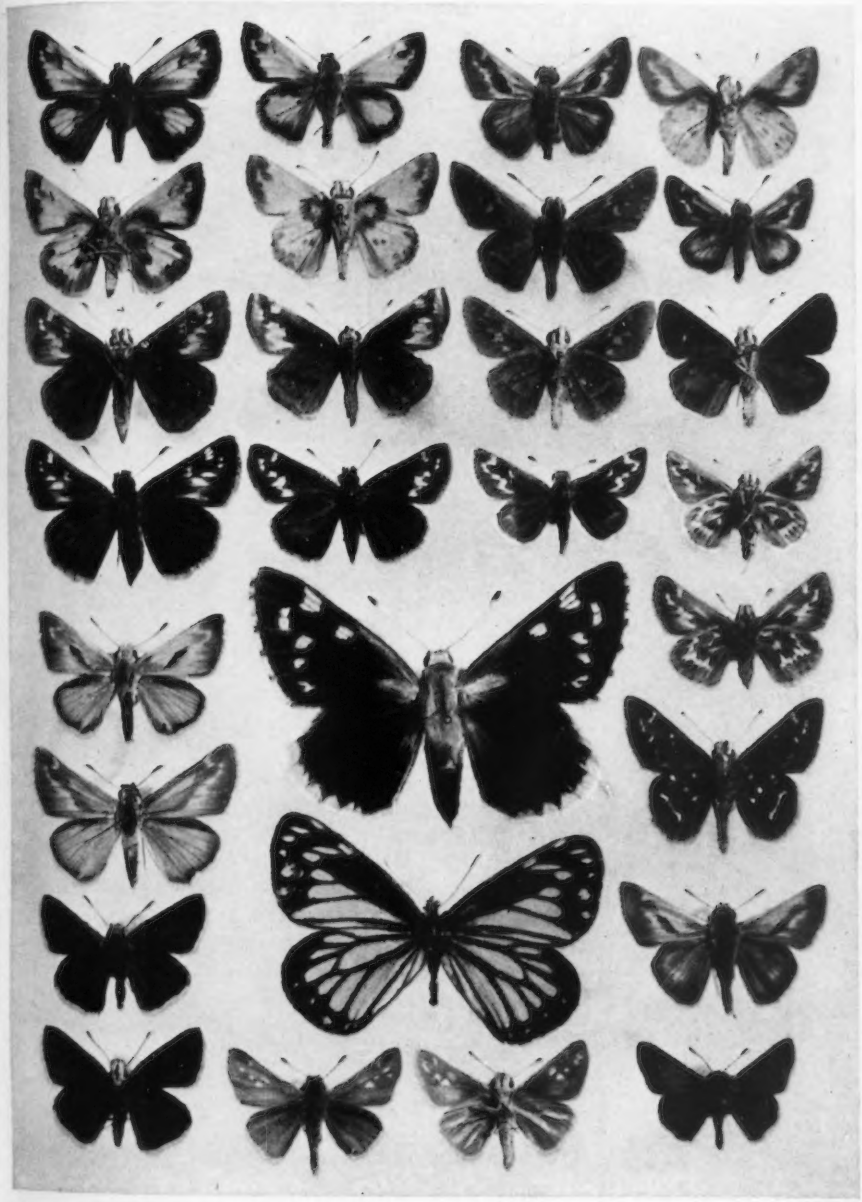
Type, the following species:

Traginops irrorata, n. sp.

Head black, the middle of the front, of the cheeks, and the antennæ except the the arista, yellow; the face clypeus; proboscis and palpi yellowish brown; occiput and sides of front gray pruinose, a black spot at insertion of each bristle, face and upper and lower edges of the cheeks whitish pruinose, two black spots on the upper part of each cheek. Thorax black, opaque, gray pruinose, rather thickly covered with brown spots and dots, bearing three humeral bristles, two post-humeral, one præsutural, four super-alar, four dorso-central and one acrostichal; pleura gray pruinose, marked on its upper edge and also near its middle with a brown vitta, sternopleura bearing three or four macrochaetæ along its upper edge besides several hairs, prosternal bristle present, pleura otherwise bare; scutellum black, gray pruinose, marked with a central brown spot, the margin yellow, four dots and the front angles brown, bearing four macrochaetæ. Abdomen dark brown, slightly polished, the sides and venter gray pruinose and covered with brown dots and spots. Legs yellow, the front femora except their apices, bases of the others, two bands on each tibia, and the tarsi, except the apices of the joints, blackish brown. Wings whitish hyaline, rather thickly covered with brown dots and spots, as in the accompanying figure (from a drawing by Mrs. C.), the posterior margin bordered with dark gray, veins bare; halteres yellow.

Length, 3 to 4 mm.

Georgia. Ten specimens collected by the late H. K. Morrison. I have also examined two specimens collected by Mr. C. W. Johnson in New Jersey. Type No. 4392, U. S. Nat. Museum.

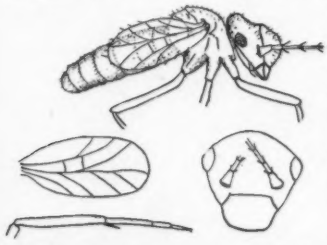


YELLOW AND BLUE.

A New Genus of Atropidae.

By NATHAN BANKS.

The Atropidæ were in former times known from the Psocidæ not only by the absence of ocelli, but also by the absence of wings. Now, however, there are two genera with one pair of wings, at least in one sex; these are *Psoquilla* Hagen and *Dorypterx* Aaron. Hagen erected the genus *Psoquilla* for a very handsome species of which he had seen but one specimen, supposedly from Hamburg. McLachlan in his monogaph of the British Psocidæ recorded two specimens found in England, and gives an excellent figure of the insect. Other than these two references the species appears to be unknown. The species is probably a native of some tropical country, and its occurrence in Europe due to occasional importations.



Dorypteryx was proposed by Aaron for a pale insect found among piles of books in Philadelphia. It is a very active little form and jumps readily. The female appears to be normally apterous, but the male has slender wings, held close to the body, after the manner of *Boreus*. I have found it among books at Washington, D. C. Although it may be an importation it appears to be fully established at the present time.

To these two genera I can now add a third, which was recently sent me by Mrs. A. T. Slosson in a vial of spiders from Biscayne Bay, Florida. Mrs. Slosson writes that this little atropid was caught destroying her butterflies while on the stretching boards. Although the harm done in her case was trifling, the insect could, with a little carelessness, become quite a pest in insect boxes.

Psocinella n. gen.

No ocelli; two short wings (mesothoracic), somewhat more than twice as long as broad, broadly rounded at the tip, with several veins and a closed central cell; costal vein forked toward tip; the median vein gives off three branches behind and one in front; anal vein simple; no trace of hind wings; legs slender, femora not dilated, tarsi three-jointed, basal joint long and slender, hind tibia longer than the femora (but not as much

as in *Dorypteryx*); head not very broad and the eyes not especially prominent; antennæ filiform; abdomen rather slender.

Type, *P. slossonæ*.

This genus differs from *Dorypteryx* by the shape and venation of the wings; from *Psoquilla* by less prominent eyes, venation and less swollen femora. *Psoquilla* is evidently its nearest ally; in that genus, however, the costal vein is not forked, there are but two branches below from the median vein, the anterior branch of the median is forked; the head is broad and eyes very prominent; and the abdomen is broad and depressed.

The three genera of Atropidæ with veined wings may be tabulated as follows:

1. Wings broad, rounded at tip	**2.**
Wings lanceolate, femora slender	**Dorypteryx.**
2. Costal vein forked, femora slender	**Psocinella.**
Costal vein simple, femora slightly dilated . .	**Psoquilla.**

Psocinella slossonæ n. sp.

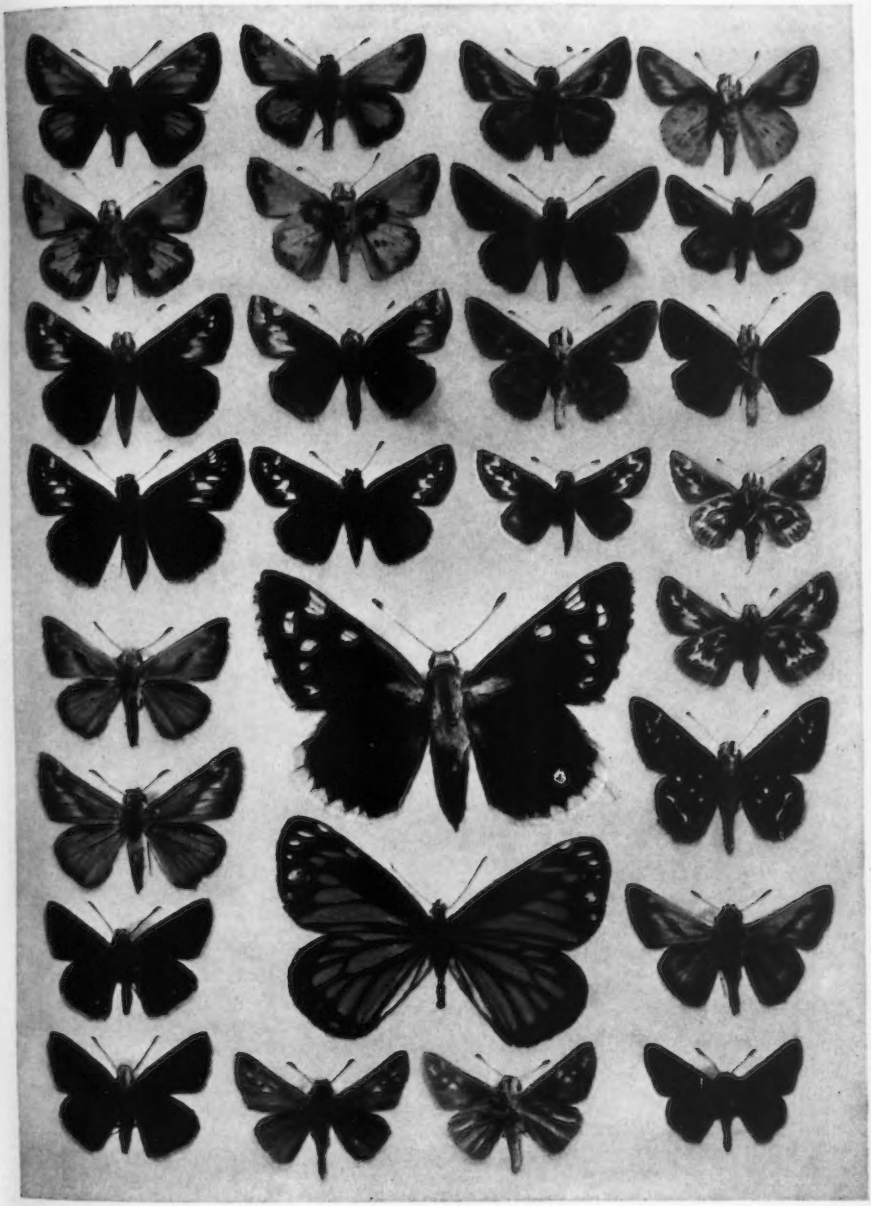
Whitish, head yellowish, antennæ purplish, a black spot above on the fourth abdominal segment, tibiæ blackish. Wings hyaline, veins hyaline, reaching beyond middle of abdomen; the costal vein forked near tip; the median joined to the costal in two places near center of wing thus forming a closed cell; upper branch of median vein simple, three simple branches below; anal vein simple. Antennæ filiform (broken beyond sixth joint). Head not broad above, nasus prominent; legs slender, basal joint of tarsus about one-half as long as tibia; hind tibia plainly longer than hind femora; abdomen slender, subcylindric. Body and legs sparsely clothed with fine short hairs.

Length, 1.1 mm.

Described from two specimens collected at Biscayne Bay, Florida, by Mrs. A. T. Slosson, to whom the species is dedicated.

Since this paper was written Dr. C. Ribaga has publishd the description of a new genus and species* similar to the above. His genus, *Psocathropos*, has the venation on the same plan, but the veins are bent out of the straight course observed in *Psocinella*. The thorax of his insect is much smaller than in *Psocinella*. An important difference is that *Psocathropos* has very short hind femora, while in *Psocinella* they are a little longer than the other pairs.

* Descrizione di un nuovo genere e di una nuova specie di Psocidi trovato in Italia. Revista Patol. vegetale, VIII, p. 156 (September, 1899).



Ent. News, Vol. XI. Pl. VIII.

RED AND BLUE.

List of Catocalae Taken at Louisiana, Missouri.

By G. M. DODGE.

Amnica,	Ilia,	Piatrix,
Grynea,	Cara,	Nebulosa,
Micronympha,	Amatrix,	Judith,
Cratægi,	Junctura,	Robinsonii,
Abbreviatella,	Epione,	Retecta,
Clintonii,	Serena,	Desperata,
Illecta,	Habilis,	Viduata,
Consors,	Inuubens,	Lachrymosa,
Cerogamna,	Palæogama,	Insolabilis,
Ultronia,	Neogamna,	Obscura.
Coccinata,	Subnata,	

Of the thirty-two species of Catocalæ named in this list, all but one (amatrix) were taken during the season of 1899, previous to which we had made no attempt at systematic collecting.

In addition we have four species as yet undetermined, making a total of thirty-six species for this immediate locality and all taken within the limits of 190 acres of land.

Of several of these we saw but a single specimen each ; from which we may safely infer that other species were overlooked entirely.

The collector who wishes to make an exhaustive list of the Catocalæ of his district must work in more than one way.

Sugaring is a good method, so is collecting from tree trunks in the day time ; but to employ either one to the exclusion of the other will cause the loss of some species. There are species that must be sought under sheds and the eaves of houses, while others, again, are found on flowers at dusk. By collecting the larvæ still other species may be had that would rarely or never be otherwise obtained.

Even when all these methods are employed no person will succeed in taking all the species of a given locality in one season's collecting.

WE can supply extra copies of the three-color plate on heavy paper (9 x 12) suitable for framing or keeping as separata. Price 15 cents in stamps. Apply to the Editor.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., APRIL, 1900.

In January, 1891, through the kindness of Mr. Julius F. Sachse, a well-known scientific and literary gentlemen of this city, we published a half-tone of the larva of *Citheronia regalis*. As far as we know this was the first time that this process of photography had ever been used in a natural history journal. Since then the use of half-tones for illustrative purposes has become general. In December, 1891, we also published "A Suggestion for a Possible Method of Identifying the Colors Photographed." This work was also done by Mr. Sachse and was a step in advance. Since 1891 photographic processes have been improved in various ways, and in this number we give illustrations of the so-called three-color process. Three negatives of the objects are made, each one through a different "color screen," respectively, red, yellow and blue. Three half-tones are then made from these negatives, and then by making an impression on the paper from each half-tone block, and using for each block one of the three inks—yellow, red blue—the perfect print is obtained. Great care must be taken in registering the blocks, so that each color shall properly cover the figures. The process is a wonderful one and is beautifully adapted for natural history work, as it gives mechanically correct maculation and is practically correct for color. This is our first plate of the kind, and was made here in Philadelphia.

Dr. W. J. Holland deserves great credit for having so promptly seen the possibilities of the method and for having used it with such success in his beautiful "Butterfly Book."

We give illustrations showing a print of each color; prints of two colors and the three combined into the finished illustration. We are also indebted to Mr. Sachse this time for advice and assistance. We hope to publish more of these plates, and from the experience gained, make further improvements. The subjects are from the collection of Dr. Skinner, and were selected on account of their non-actinic colors and the difficulties they present for ordinary photographic methods.

"MARY YEOMANS, an English woman now living in California, makes money by catching butterflies. She had some knowledge of the different varieties when she went to the Pacific slope. One day a flock of pansy-like butterflies hovered over her for a moment and then flew up the mountain side. She thought she recognized a rare and valuable species only known in the higher Alps. She followed these honey-loving beauties up the mountain and captured a goodly number of them. She painted a facsimile of one in water colors and sent the sketch to London. The result was an order for twenty-five of the butterflies, for which she received $575."

Mr. Edward D. Keith, of Providence, R. I., sent us the above clipping and wanted to know if it were not newspaper entomology. We have seen a variation of the above to the effect that a young lady was making a fortune in California as the owner of a butterfly farm. We presume this clipping will interest our subscribers in California, who would like to sell the species at $23 each.

FORMATION OF AN ENTOMOLOGICAL CLUB, IN BUFFALO.—On January 3d a meeting was called by the Buffalo Society of Natural Sciences for the purpose of getting together those in the city interested in the collection and study of insects. There was a good attendance, and much interest was manifested. As a result of the meeting an entomological section was organized in the Society, and Edward P. Van Duzee elected chairman. For the present season meetings will be held on the second and fourth Wednesdays of each month. During the collecting season at least two field days will be observed each month. These will be in the form of excursions to the best collecting grounds about Buffalo. The special objects in the formation of the section are the mutual sympathy and encouragement and better acquaintance among those in the city interested in this branch of science, the investigation of the local insect fauna, and the formation and preservation of a good collection of insects in the Society of Natural Sciences.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

Papers for this department are solicited. They should be sent to the editor, Prof. John B. Smith, Sc.D., New Brunswick, N. J.

SOME INSECT NOTES.*

By B. F. WEBSTER.

The little clover *Halticus uhleri*, has been studied and we have found that there are probably not less than five annual generations at Wooster. This species has a peculiar interest, as there are two forms of females, one having fully developed wings and the other has no wings at all, and instead of flying or walking, as does the first, it hops about like some of the flea beetles, and like them have the posterior femora enlarged.

A peculiar case of retardation in development has come to notice during the last year. On June 6, 1898, a number of saw-fly larvæ, from a strawberry patch near Wooster, were placed in a breeding cage in the insectary. Others from the same source were added a few days after. As nothing had emerged up to June 3, 1899, almost a year after, I instructed Mr. Mally to clear up the cage in which these larvæ had been placed with their food plants, but he was surprised to find the larvæ still alive in the small earthen cells into which they had retired for pupation. The soil in the cage was carefully replaced, but still nothing developed. September 16th, supposing all must have died, it was again decided to clear up the cage, but we were again surprised to find the larvæ alive and in apparently good condition in their cells. The soil was again replaced and we shall await the developments, as, up to date, over eighteen months since the larvæ ceased to feed, nothing has appeared.

At the meeting of the Association of Economic Entomologists in Columbus last August, Dr. E. P. Felt, State Entomologist of New York, called attention to the occurrence of the 12-spotted asparagus beetle, *Crioceris 12-punctata* at Buffalo, and in October, at the meeting of the Entomological Society of Ontario, Canada, Dr. Fletcher reported it in eastern Ontario, opposite Buffalo, so that we may expect it to reach Ohio, even as soon as next summer. This is an introduced species, coming to us from Europe, but was first found here long after *Crioceris asparagi* had begun to make its way westward. It may be stated that the latter species reached Wooster for the first during the last year, and an extended seach about Sandusky revealed only a single individual, and this at the Soldiers' and Sailors' Home just south of the city.

* Read before the Ohio Academy of Science, December 22, 1899.

Colaspis brunnea, the larvæ of which are known to attack the roots of strawberry and the beetles feed upon the leaves of grape, was reared from a species of dock (Rumex). Adults and larvæ were both observed thus feeding quite extensively. *Allorhina nitida*, the fig eater of the South, has been reported from southern Ohio feeding on ripe blackberries.

In Bulletin 96 of the Ohio Experiment Station was published a brief note on the development of *Oberea bimaculata*, and certain peculiarities of food habit noticed. On January 27, 1899, at Gypsum, Ohio, acting under my direction, Mr. Mally examined a large number of wild blackberry canes in search for any *Oberea* larvæ, and while several were found showing the characteristic girdlings only one contained a larva. The tip of the infested cane had been broken off and the rough surface calloused over. The larva had bored down only about an inch below the girdle, where it was found head upward, the girdled part of the cane being dead. This larva was transferred to a tall blackberry cane in the insectary, January 21st, and began feeding within two hours after, in a temperature of approximately 75 to 85 degrees F., indicating that they commence feeding as soon as warm weather begins. By January 31st the larva had made the first opening through the cane about one inch from the top, and was working industriously. By means of a hand glass Mr. Mally watched the larva protrude the castings and, to his surprise, discovered that the pellets were pushed out with the mandibles. The cane was immediately pared away until the opening was enlarged sufficiently to permit of distinct observation. In a few moments the larva ascended backwards until the jaws were opposite the opening, when it reached out, dropped the pellet, and then descended the burrow, but after feeding for a short time—head downward—it reascended several times in succession, each time pushing out small bits of material. One or two small pellets were noticed on the tip of the last extremity. These drop off and fall down to the bottom of the burrow while the larva is feeding, when it grasps them with its mandibles and carries them to the opening and pushes them out. By February 2nd, the larva had made three excretal apertures, about 1¼ inches apart, thus having burrowed farther in twelve days than Mr. Slingerland records for the larvæ of *Oberea bimaculata* observed by him during the middle of July. The castings could be separated into two distinct forms, the oblong rounded pellets, frequently occuring in chains and irregular granular crumbs or chips. At first it was thought that the chips were fragments of pellets that had been broken as they dropped down between the larva and the wall of the burrow. In order to get definite information on this point it was necessary to pare away the woody tissue, so as to show the full length of the burrow, and then securely fasten a narrow strip of mica over the opening, thus exposing the larva to full view while working. At first the larva was very restless, but soon became accustomed to the new conditions and began working energetically, pulling off bits of the pith and pushing them in behind the mica until the irregularities had been adjusted and then pushing them out at the excretal opening. It would stop and feed occasionally, often protruding three to five pellets at a time.

These would be dislodged by an unsteady lateral motion of the tip of the abdomen. The larva would sometimes ascend the burrow, especially after a new excretral opening had been made, and seizing the lower end of the chain pellets before they dropped to the bottom, thus eject them from above the opening. But usually it would seize the chain by the upper end, and draging it up to the opening eject it from beneath, the chain at first protruding upward at an acute angle, but as the middle was reached, it would balance and hence be very readily pushed out. The ejection of the pellets in chains is made possible by the way the larva makes the opening. When beginning to gnaw through to the outer surface the opening is large and irregular; but gradually narrows down to a small aperture by the time the epidermis is reached, thus making it broadly sub-conical, and admitting the head just far enough for the mandibles to reach the surface. The larva certainly pulled out a great many more chips than is necessary to simply round out the burrow. This must be considered as a waste of food material for which there would be no excuse, unless it is done to make sure of reaching the rootstock before winter, even at the risk of exhausting the food supply, in case the larva was in a small cane. But, as the larva was seen feeding from the sides of the burrow, it may be that, on reaching the rootstalk, it feeds at random.

To determine the necessity of its reaching the rootstock it was placed in a blackberry cane five feet high and left undisturbed. It burrowed down to within three feet of the surface and then stopped working, no more castings appearing. An examination July 10, 1899, revealed the fact that the larva had died, leaving this point still in question. But the fact that we received similar larvæ from the twigs of apple and pear in such position that the larva could not reach the roots, would indicate that they may feed until ready to transform and then pupate, regardless of the rootstock.

On August 21, 1899, at Langsville, Ohio, *Oberea* larvæ were found working in the *young* canes of red raspberry, the great majority having already burrowed down into the rootstock, thus limiting their food supply and certainly necessitating their transformation in one year, for it is manifestly impossible for them to make their way from one cane to another.

This difference in life history is certainly important, and suggests the possibility that there are two species in question.

Ordinarily the larva of the Hessian fly, *Cecidomyia destructor*, has the effect of destroying the central shoot of the young wheat plants, but this year an exception to this rule was noticed in a plot of wheat sown on unfertilized ground on the Experiment Farm. In quite a number of instances plants having a full grown larva back of the leaf sheath the central shoot was in good condition. In some cases the larva was lodged securely just behind the upper end of the sheath at the base of the leaf, while in others it was half way, and in others close down to the roots. Those at the upper end of the sheath having attained the flaxseed stage are quite certain to develop adults. This difference in the effect of the insect could

not have been due to the variety of the wheat as all of the plots were of the same variety but differently fertilized. On the fertilized plots the peculiarity was not observable. It would seem then that the Hessfan fly may attack a wheat plant, the growth of which has been influenced by lack of fertility in the soil, and develop there without destroying the plant. While this phenomenon is easily explainable where larva had developed near the base of the leaf and had clearly drawn its food supply from the leaf instead of the stem, in case of those low down, near the root, explanation seems quite impossible on these grounds.

A CORRECTION.—For Harrison G. Dyer, on page 333 present volume, read Harrison G. Dyar.

W. J. HOLLAND states in his Butterfly Book that *Achalaurus cellus* (the golden banded skipper), is found in Virginia and southward. I have found them abundant in this part of Maryland (Anne Arundel County.)—Alex. A. Girault, Annapolis, Md.

Eutanypus IN NEW MEXICO.—On January 31st I examined the bands placed around the apple trees on the Experiment Station Farm at Mesilla Park, to see what might be hibernating beneath them. The miscellaneous catch included one living Chironomid fly, which I took to be a species of *Tanypus*. I sent it to Mr. Coquillett, and he tells me that it is his *Eutanypus borealis*, described last year from Bering Island and Mt. Washington, N. H. The occurrence of this boreal fly so far south seems worth recording; and it is interesting to note that, whereas in the far north it is caught in July and August, with us it appears in midwinter.—T. D. A. COCKERELL.

DRAGONFLIES CAUGHT BY TENDRILS OF VINES.—"A rather unusual occurrence which created some little interest among local entomologists and others in August of the present year (1899) was the ensnaring of a large green dragonfly, *Anax junius* Drury, by a tendril of wild balsam apple, *Micrampeles lobata* Green.

"It is conjectured that the insect had settled upon the vine and becoming somewhat benumbed by the cool of evening, was easily entrapped by the outreaching tendril, which had wound itself quite tightly about the insect's body, near the joint of the seventh and eighth abdominal segments.

"The prisoner remained quite lively for several days, often flying out to the length of its vegetable rope until it finally perished at the hands of a careless observer.

"After our attention had been drawn to this curiosity, several instances of the entrapping of smaller species of the order Odonata by vine tendrils were also noted. In these cases the insects had been made prisoner by the tendrils entwining [them] selves about their limbs."—C. E. BROWN in Bulletin of the Wisconsin Natural History Society (new series), i, pp. 67-68. Milwaukee, January, 1900.

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in HEAVY-FACED TYPE refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

4. The Canadian Entomologist, London, Ont., March, 1900.—**7.** U. S. Department of Agriculture, Division of Entomology, Washington; Bulletin 22, new series, 1900.—**9.** The Entomologist, London, March, 1900.—**11.** The Annals and Magazine of Natural History, London, Feb., 1900.—**13.** Comptes Rendus. Société de Biologie, Paris, 1900.—**15.** Biologia Centrali-Americana, London, part clii, Dec. '99; rec'd. Feb. 20, 1900.—**21.** The Entomologist's Record, London, Feb. 15, 1900.—**24.** Berliner Entomologische Zeitschrift, xliv, 3. Dec. 99.—**33d.** Denkschriften, Kaiserliche Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Classe, lxvii, Vienna, '99.—**33s.** Sitzungsberichte of the same, cvii, '98; rec'd. Feb. 19, 1900.—**35.** Annales, Société Entomologique de Belgique, Brussels.—**37.** Le Naturaliste Canadien, Chicoutimi, Quebec, Feb., 1900.—**41.** Entomologische Nachrichten, xxvi, 4, Berlin, Feb., 1900.—**44.** Verhandlungen, Zoologisch-botanische Gesellschaft in Wien, xlix.—**60c.** Comunicaciones, Museo Nacional de Buenos Aires, i, 5, Dec. 30, '99.—**67.** Entomologiske Tidskrift, Stockholm, xx, No. 1, Mar. 22, '99; No. 2-3, Sept. 26, '99; No. 4, Jan. 23, 1900.—**68.** Bulletino, Societa Entomologica Italiana, xxxi, Florence, Dec. 31, '99.—**84.** Insekten Börse, Leipsic, 1900.—**92.** Illustrierte Zeitschrift für Entomologie, Neudamm, '99.—**99.** Bulletins, Cornell University, Agric. Exper. Station, Ithaca, New York.—**104.** Mittheilungen, Naturhistorisches Museum, Hamburg, xvi, 2, Nov. 1, '99.—**123.** Bulletin, Wisconsin Natural History Society, new series, i, 1, Milwaukee, Jan. 1900.—**124.** Schriften, Naturwissenschaftliches Verein für Schleswig Holstein, xi, 2, Kiel, '98; rec'd. Feb. 26, 1900.—**125.** British Bee Journal, London, 1900.

THE GENERAL SUBJECT.—Brown, C. E., See Neuroptera. —**Busck A.** Notes on a brief trip to Puerto Rico in January and February, 1899, **7.—Chittenden, F. H.** Insects and the weather: observations during the season of 1899. **7.**—[**Crevecoeur, F. F.**] Notes on Miscellaneous insects in Kansas, **7.—Frühstorfer, H.** Leaves of my diary [travels in the U. S.], **84,** Jan. 4-Feb. 15.—**Gilles, W. S.** The use of formalin as a preservative of insects, **9.—Harward, W.** Insectivorous habits of lizards, **7.—Howard, L. O.** The insects to which the name

"kissing bug" became applied during the summer of 1899, figs., **7.—Knuth, P.** How flowers attract insects, **124.—Lameere, A.** Discourse on the reasons for the existence of metamorphoses in insects, **35,** xliii, 13, Jan. 23, 1900.—**Pic, M.** Some entomological accidents, Le Naturaliste, Paris, Feb. 1. 1900.—**Rudow.** On variations in size of insects, **84,** Jan. 11.—**Terre, L** Metamorphosis and phagocytosis, **13,** Feb. 17.—**Viré A.** La Faune Souterraine de France, Paris, J. B. Balliére et Fils., 1900, 8vo., pp. 148, 4 pls.

ECONOMIC ENTOMOLOGY.—Anon. Mosquitos and fever, **84,** Jan, 18.—**Anon.** Caterpillars and maple sugar, **37.—Bailey, L. H. et al.** Spraying notes, **99,** No. 177, Jan., 1900.—**B[anks], N.** Cotton insects in Egypt, **7.—Bergman, A.** On economic relations of Oestridæ, 2 pls. [in Swedish], **67,** 1.—**Id.** Researches on the larva of *Ocneria dispar* L., **67.** 4.—**Brown, C. E.** Depredations of the cottony maple scale; Fruit feeding habit of the cotton worm moth, **123.—Busck, A.** See General Subject.—**Chapais, J. C.** The strawberry saw-fly, the gooseberry fruit-worm, **37.—Chittenden, F. H.** Food plants and injury of North American species of *Agrilus;* Notes on two species of "lightning hoppers" [Fulgoridæ]; The recent spread of the Mediterranean flour moth, **7.—Coquillett, D. W.** Two new Cecidomyians destructive to the buds of roses, figs.;* a new violet pest, fig.* **7.—Dalrymple, W. H., Dodson, W. R.,** and **Morgan, H. A.** Immunization against Texas fever by blood inoculation, figs., Bulletin, Agric. Exper. Station of the Louisiana State College, etc. Second series, No. 57, Baton Rouge, La., 1899.—**Fisher, A. K.** A new clothes-moth remedy [carbon bisulphide], **7.—Hanley, A. H.** Tumbe or Kroo fly, New York Medical Journal, Mar. 3, 1900.—**Havens, F. G.** Insect control in Riverside, California, **7.—Hemenway, H. D.** Experiments with hydro-cyanic acid gas, as a means of exterminating mealy bugs and other insect pests in greenhouses, **7.—[Howard, L. O. et al.]** Reported injury by giant scarabæid beetles; Locusts in Argentina and Lourenço Marquez, Southeastern Africa; A cotton stainer [*Dysdercus*] in Peru; The green June beetle of the Southwest [*Allorhina mutabilis*]; A Dipterous enemy of cucurbits in the Hawaiian Islands [*Dacus cucurbitæ*]; A troublesome twig-girdler of the Southwest [*Oncideres putator*], **7.—Kornhuber, A.** A scale insect as a forest pest on *Robinia Pseudacacia* L., Verhandlungen, Vereins für Natur- u. Heilkunde zu Presburg (n. F.), x, 1899.—**Krüger, L.** Insektenwanderungen zwischen Deutschland und den Vereinigten Staaten von Nordamerika und ihre wirtschaftliche Bedeutung, Herausgegeben vom Entomologischen Vereine zu Stettin, 1899, 8vo., pp. 174, viii.—**Lagerheim, G.** Contributors to knowledge of galls of *Juniperus communis*, **67,** 2-3.—**Lampa, S.** Report of the State Entomological Institute for 1898, figs, [in Swedish], **67,** 1.—**Id., Meves, J.** The "Nonne" *Lymantria monacha* L., 1 pl. [in Swedish, separate articles], **67,** 2-3.—**Libbertz, A.** On blood parasites and their transmission by blood-sucking insects, 6 pls., Bericht der Senckenbergischen naturforschenden

Gesellschaft, 1899. Frankfurt am Main.—**Lohmann, H.** The San José scale and its allies, **124.**—**Lounsbury, C. P.** Fruit fly notes, Agricultural Journal, Cape Town, Jan 4, 1900.—**Id.** Two pine apple pests and some reflections on pests in general, figs., *l. c.*, Jan. 18, 1900.—**Morgan, H. A.** Ticks and Texas fever, 9 pls., Bulletin, Agric. Exper. Station of the Louisiana State College, etc., second series No. 58, Baton Rouge, La., 1899.—**Nuttall, G. H. F.** Newer researches on the rôle of mosquitos in the distribution of malaria, Centralblatt für Bakteriologie, Jena, Feb, 12-16, 1900.—**Reh, L.** Researches on American orchard scales, **104.**—**Id.** Scale insects on American fruit imported into Germany [translated abstract from the preceeding.] **7.**—**Reuter, E.** A new competitor with the codlin moth (*Carpocapsa pomonella*) [in Swedish], **67,** 1.—**Sjöstedt, Y.** [On economic entomological stations in the United States and Canada] [In Swedish], **67,** 2-3 —**Slingerland, M. V.** The peach tree borer, figs., **99,** No. 176, Dec. '99.—**Tepper, J. G. O.** Notes on cockroaches in South Australia, **7.**—**Van Slyke, L. L.** Report of analyses of Paris green and other insecticides, Bulletin 165, New York Agric. Exper. Station, Geneva, N. Y., Dec. '99.—**Wilcox, E. V.** Abstracts of recent publications, Experiment Station Record, xi, 5, U. S. Department of Agriculture, Washington, 1900.—**Woldert, A.** A preliminary investigation of the theory of the inoculation of malarial fever through the agency of mosquitoes, 1 pl., Journal American Medical Association, Chicago, Feb. 3, 10, 1900.—Numerous short "Notes from Correspondence," **7.**

ARACHNIDA.—Cambridge, F. O. P. Arachnida Araneidea, vol. ii, pp. 81-88, pl. vi,* **15.—Cambridge, O. P.** Arachnida Araneidea, vol. i, pl. xxxiii., **15.—Kræpelin, K.** On the classification of the Solifugæ, 2 pls.*, **104.—Morgan, H. A.** See Economic Entomology.—**Thon, P. C. C.** On an interesting case of parasitism among the Hydrachnidæ, **44,** 9, Dec. 23, '99.

MYRIAPODA.—Attems, C. Classification of the Polydesmidæ, part i, 11 pls.,* **33d.—Verhœff, C. W.** On double males among Diplopods, figs., Zoologischer Anzeiger, Leipsic, Jan. 22, 1900.

APTERYGOTA.—Plateau, F. [Report on award of prize to V. Willem's] "Anatomical and systematic researches on the insects of the group Apterygota," Bulletin, Classe des Sciences, Academie Royale de Belgique, 1899, No. 12, Brussels.—**Willem, V.** A new type of Sminthurid; *Megalothorax*, figs., **35,** xliv, 1, Jan. 30, 1900.

ORTHOPTERA.—Bordage, E. Regeneration of the tarsus and of the two anterior pairs of limbs in the Orthoptera saltatoria; On the absence of regeneration in the posterior limbs of the Orthoptera saltatoria and its probable causes [both translated from French orig.], **11.—Burr, M.** On the geographical distribution of European Orthoptera, **21.—Hunter, W. D.** An investigation to determine whether *Melanoplus spretus* breeds permanently in the Turtle Mountains in North Dakota, **7.—McNeill, J.** The Orthopteran genus *Trimerotropis*,* Psyche, Cam-

bridge, Mass., March, 1900.—**Id.** *Orchelimum*, Serv., **4.**—**Smith, H. M.** Nocturnal flight of grasshoppers, **7.**

NEUROPTERA.—**Berg, C.** The Mantispidæ of the Argentine Republic [in Spanish], **60c.**—**Brown, C. E.** The balsam apple vine as an insect trap, **123.**—**Kolbe, H. J.** The species of the peculiar Neuropterous genus *Nemoptera*, Sitzungs Berichte, Gesellschaft der naturforschenden Freunde, Berlin, Jan. 16, 1900—**Needham, J. G.** Nymphs of Northern Odonata still unknown, **4.**—**Wasmann, E.** The guests of ants and termites [transl.], **21.**

HEMIPTERA.—**Berg, C.** Hemipterological notes [in Spanish], **60c.**—**Busck, A.** [list of Coccidæ] See the General Subject.—**Caudell, A. N.** A new species of *Sinea*,* **4.**—**Champion, G. C.** Rhynchota Heteroptera, vol. ii, pp. 289-304, pl. xvii,* **15.**—**Cockerell, T. D. A.** New insects from Arizona, and a new bee from Mexico;* Note on the coccid genus *Oudablis* Signoret, **9.**—**Id.** Rhynchota Homoptera, vol. ii, pt. 1-33,* **15.**—**Green, J. A.** A new Western enemy of the Colorado potato beetle [*Perillus claudus* Say], **7.**—**Haglund, C. J. E.** Notes on Hemiptera collected in Chile and Argentina by Mr. P. Dusen, engineer [in Swedish], **67,** 1.—**Handlirsch, A.** How many stigmata are there in the Rhynchota? Figs., **44,** 10, Jan. 19, 1900.—**Howard, L. O.** The two most abundant Pulvinarias on maple, figs., **7.**—**Kirkaldy, G. W.** Notes on Jamaican Rhynchota, No. 2,* **9.**—**Martin, J. O.** A study of *Hydrometra lineata*, figs., **4.**—**May, W.** On the ventral shield of the Diaspinæ; On the larvæ of some species of *Aspidiotus*, **104.**—**Montgomery, T. H., Jr.** Note on the genital organs of *Zaitha*, figs., American Naturalist, Boston, Feb., 1900.—**Tinsley, J. D.** Contributions to Coccidology, ii, **4.**

COLEOPTERA.—**Aurivillius, C.** New or little known Coleoptera Longicornia, figs., **67,** 4.—**Bartlett-Calvert, G.** Monografia de los Elateridos de Chile. Publicado en los "Anales de la Universidad." Santiago de Chile. Imprenta Cervantes, 1898. Stated on the title page to be extracted and translated into Castilian from the works of Candeze and other authors. 8vo. 84 pp. [in Spanish].—**Berg, C.** On some Chileno-Argentine Anisomorphidæ [in Spanish]; The genus *Rhyephenes* Schönh in the Argentine Republic [in Spanish], **60c.**—**Brenske, E.** The *Serica* species of the World, monographically treated (cont.), **24.**—**Chittenden, F. H.** Biologic observations on *Harpalus pennsylvanicus* DeG.; A note on the cocklebur bill-bug [*Rhodobænus 13-punctatus*]; The bronze apple tree weevil (*Magdalis ænescens* Lec.) figs., **7.** Also see Economic Entomology.—**Delfin, F. T.** Data for a knowledge of the Coleoptera and Hymenoptera of the Department of Talcahuano, [In Spanish] Revista Chilena de Historia Natural, Valparaiso, Jan. 1900.—**Heller, K. M.** On the synonymy of the Zygopidæ, **41.**—**Holmgren, N.** To knowledge of the copulatory sac of the Elateridæ, and a contribution to the classification of this family; preliminary note, **67,** 2-3.—**Horn, W.** On two new species of the genus *Tetracha* from Ecuador, **41.**—

Lewis, G. On new species of Histeridæ and notices of others,* **11.**—**Oudemans, J. T.** De Nederlandsche Insecten. Aflevering 14. s'Gravenhage Martinus Nijhoff., 1899, pp. 641–712, Coleoptera (cont.), figs., pp. 713–739, Hymenoptera, figs. [in Dutch].—**Rœschke, H.** Carabological notes, v. [some types in British collections], **41.**

DIPTERA.—Bergman, A. See Economic Entomology.—**Brauer, F.** Contributions to the knowledge of the Muscaria schizometopa, **33s,** 6, June, '98.—**Coquillett, D. W.*** See Economic Entomology.—**Ficalbi, E.** Twenty species of Italian mosquitoes (Culicidæ), classed and described, and indicated according to their chorological distribution, figs. **68.**—**Kellogg, V. L.** An extraordinary new maritime fly, figs.,* Biological Bulletin, i, 2, Boston, Jan., 1900.—**Mik, J.** Dipterological miscellany, Wiener Entomologische Zeitschrift, xix, 1, Jan. 31, 1900.—**Noe, G.** Contributions to the study of the Culicidæ, **68.**—**Petri, L.** The muscles of the wings of Diptera and of Hymenoptera, 3 pls., **68.**—**Ricardo, G.** Notes on the Pangoninæ of the family Tabanidæ in the British Museum collection (cont.), **11.**—**Rübsaamen, E. H.** How are cecidozoa prepared, **92,** Feb. 1.—**Speiser, P.** On the Streblidæ, pupiparous Diptera parasitic on bats, 2 pls., figs. Archiv für Naturgeschichte lxvi, i, 1, Berlin, Dec., '99.—**van der Wulp, F. M.** Diptera, vol. ii, pp. 409–416,* **15.**

LEPIDOPTERA.—Brown, C. E. See Economic Entomology.—**Butler, A. G.** Note on *Cyaniris pseudargiolus* of Boisduval and Le Conte, **4.**—**Chapman, T. A.** On the moult to pupa in *Pterophorus*, **9.**—**Dernehl, P. H.** Swarming of the milkweed butterfly, *Danais archippus*; On the occurrence of the hawk moth, *Argeus labruscæ* in Wisconsin, **123.**—**Dodge, G. M.** *Pyrameis huntera*, n. var. *fulvia*,* **4.**—**Druce, H.** Lepidoptera Heterocera, vol. ii, pp. 569–592, **15.**—**Dyar, H. G.** Notes on some North American Yponomeutidæ (cont.),* **4.**—**Fischer, E.** Contributions to experimental Lepidopterology. (cont.) pl., **92,** Feb. 1.—**Frings, C.** On the seasonal dimorphism of the species of *Pieris* occurring in Rheinland, Societas Entomologica, Zurich-Hottingen, Feb. 1, 15, 1900.—**Fyles, T. W.** Further observations upon *Bombyx cunea* Drury, etc., **4.**—**Grote, A. R.** Genealogical trees of butterflies, Proceedings, American Philosophical Society, Philadelphia, xxxviii, No. 160, Dec., '99.—**Id.** A new popular name for *Clisiocampa disstria*, **4.**—**Mayer, A. G.** On the mating instinct in moths, [from Psyche] **11.**—**Moffat, J. A.** *Hydroecia stramentosa*, Guen. 1 pl., **4.**—**Pagenstecher, A.** The Lepidopterous fauna of the Bismarck Archipelago, ii part, the night moths, 2 col. pls. Zoologica, heft 29. 12ter Bd., Lieferung 1 and 2., Stuttgart, 1900.—**Rauterberg, F.** Diurnal Lepidoptera of Milwaukee Co., Wis., **123.**—**Rebel, H.** Fossil Lepidoptera from the Miocene formation of Gabbro, 1 pl., **33s,** heft 7, July, '98.—**Id.** On recognition of the Lemoniidæ as a separate family of Lepioptera, **41.**—**Schultz, O.** Phosphorescent light appearance on the antennæ of *Asteroscopus sphinx* Hufn. (*cassinia* Fabr.) **24.**—**Stichel H.** *Oreogenes*, a

new Neotropid genus, fig., **24.**—**Weymer, G.** Some new Neotropidæ, 1 pl., **24.**

HYMENOPTERA.—**Anglas, J.** Preliminary note on the internal metamorphoses of the wasp and the bee; lyocytosis, **13,** Jan. 27.—**Anon.** Bees and the knowledge of the weather, **84,** Feb. 1.—**von Buttel-Reepen, H.** Are bees "reflex machines?" Experimental contributions to the biology of the honey bee, Biologisches Centralblatt, Erlangen, Feb. 15, 1900.—**Cockerell, T. D. A.** A new oak-gall from New Mexico,* **4.** Also* see Hemiptera.—**Delfin, F. T.** See Coleoptera.—**Forel, A.** Hymenoptera, vol. iii, pp. 137–160 [Formicidæ],* **15.**—**Id.** Ants collected by Her Royal Highness Princess Therese of Bavaria on a journey in South America, figs., **24.**—**Hamlyn-Harris, R.** Parthenogenesis and the part it plays in the development of the honey bee, **125,** Jan. 11, 18.—**Janet, C.** Anatomy of the thorax of *Myrmica rubra* queen, figs., 1 pl., Memoires Société Zoologique de France, 1898.—**Id.** Tegumentary glandular system of *Myrmica rubra;* various observations on ants, figs., Paris, G. Carré et C. Naud Editeurs, 1898, 8vo. 30 pp.—**Id** Sting of *Myrmica rubra;* apparatus for closing the venom gland, figs., 3 pls. Paris, G. Carré et C. Naud, editeurs, 1898. 8vo. 27 pp.—**Konow, F. W.** Analytical tables to identify the hitherto described larvæ of the Hymenopterous suborder Chalastogastra, **92,** July 1.—**Krieger, R.** On some Ichneumonid genera related to *Pimpla,** Sitzungsberichte der naturforschenden Gesellschaft zu Leipzig '97–'98. July 14, '99; rec'd. Mar. 8, 1900.—**Kulagin, N.** The influence of temperature on the eggs, larvæ and pupæ of bees, **92,** July 1.—**Ludwig, F.** Ants in the service of plant distribution, **92,** Feb. 1.—**M., D M.** A battle royal [of queen bees], **125,** March 1.—**Oudemans, J. T.** See Coleoptera.—**Petri, L.** See Diptera.—**Plawina, O.** The revenge of a wasp, **84,** Jan. 25.—**Rudow.,** Some buildings of the Hymenoptera, **84,** Feb. 8.—**Rübsaamen, E. H.** See Diptera.—**Smith, J. B.** The life of a digger bee, figs., Popular Science, New York, March, 1900.—**Terre, L.** On muscular histolysis of the Hymenoptera, **13,** Jan. 27.—**Id.** On the histolysis of the adipose body in the bee, **13,** Feb. 17.—**Wassmann, E.** See Neuroptera.

We have received a specimen of *Catocala innubens* var. *scintillans* from Coban, Guatemala. This gives quite a range to this species.—Henry Skinner.

Mr. R. J. Weith, of Elkhart, Indiana, has sent a specimen of *Tabanus americanus* and also the imago and pupa case of what we take to be the common house-moth. The larvæ of the moth fed on the *Tabanus* and the imago emerged from it. We have also had museum specimens of Lepodoptera injured by the larvæ of this moth and do not believe such injury is uncommon. Mr. Weith has not observed such injury before in an experience of many years as a collector and would like any information on the subject.—Eds.

Doings of Societies.

The third meeting of the Harris Club was held at 35 Court Street, Boston, on Friday evening, January, 19, 1900. A formal Constitution was adopted, and officers were elected as follows: President, A. G. Weeks, Jr.; Vice Presidents, H. H. Newcomb and P. G. Bolster; Secretary and Treasurer, W. L. W. Field. Communications dealing with Protective Coloration were presented by Messrs. E. B. Clapp, A. P. Hall and A. H. Clark, and were discussed at some length. Mr. H. H. Newcomb mentioned a specimen of *Citheronia sepulcralis* from York, Maine, and Mr. W. F. Low told of the capture of the same species at electric light in Jamaica Plain, Mass.

W. L. W. FIELD, *Secretary*.

At the fourth meeting of the Harris Club, held at 35 Court Street, Boston, on the evening of February 16, several interesting communications were made. Mr. Lawrence Brooks showed an enormous cocoon of *Attacus cecropia*, which he had found attached to the lower part of a bush in a swamp. Mr. R. W. Denton remarked on the frequent occurrence of such inflated cocoons in similar situations; he conjectured that they might have a greater capacity for resisting inundation than is possessed by the usual form, though it would be diffcult to account for such an adaptation to extremely local conditions. Mr. W. L. W. Field hazarded the suggestion that an excessive supply of water might increase the production of silk, if not, indeed, the actual size of the larva. Mr. A. H. Kirkland told of the discovery of an egg-cluster of the Gypsy moth, coated with algæ, on piling which was submerged in salt water at high tides. The eggs hatched when the proper time arrived. Apropos of Dr. Mayer's experiments with *Attacus promethea*, he briefly recounted his own investigations of the mating instinct in the Gypsy moth. The finding of two pupæ in a single cocoon of the *Clisiocampa disstria* was also mentioned by Mr. Kirkland, and Mr. Brooks told of a like case of co-operative cocoon spinning by larvæ of *Halisdota caryæ*. Mr. Field remarked on the great variation observed from year to year in the insect fauna of New England, and the importance of a

thorough study of the distribution of certain species. Mr. Denton exhibited some beautifully mounted specimens of protectively colored Lepidoptera. W. L. W. FIELD, *Secretary*.

The meeting for March of the Newark Ent. Society was held in Turn Hall. Meeting called to order by President Kemp. Mr. G. Luccareni, of Boonton, N. J., was elected a member of the Society. Prof. Smith gave an interesting lecture on how to distinguish Noctuids from Bombycids and Micros from Tineids, etc., by the veins of the wings. WM. H. BROADWELL, *Sec.*

A regular meeting of the Chicago Entomological Society was held Thursday evening, March, 15, 1900, at the John Crerar Library. Those present were Messrs. Healy, Bates, Hancock, McDade, Longley, Hills, Thiess, and Kwiat with President Westcott in the chair. Visitors present were Messrs. Rowley, Engl, Orbe and Prof. J. G. Needham.

After the reading of the minutes, the Publication Committee made its report on the first issue of "Occasional Memoirs," which was just completed. Bills for same were unanimously approved and ordered paid. Moved and seconded that a price of thirty cents be charged for all copies sold. Carried. Moved that twenty-five reprints be ordered for the use of each contributor to the publication. Seconded and carried. Mr. Healy and Dr. Hancock were then appointed by the Chair to supervise the work of distributing copies of the publication.

Professor Needham then read the article written by him, which appears in the book, entitled, "Insect Drift on the Shore of Lake Michigan." He also complimented the Society on the excellent book, which forms the first issue of its "Occasional Memoirs." He was applauded at the close of his discourse and after some discussion on the subject of the paper the meeting adjourned at 9.30 P.M. A. KWIAT, *Secretary*.

THE STUDENTS' ENTOMOLOGICAL ASSOCIATION.

Although Philadelphia already had two entomological societies,—one the American Entomological Society, of world-wide repute, and the other, the Feldman Collecting Social, for the fostering of social interests,—yet it became apparent that there

was room for another society in which the younger entomologists might associate themselves for study. The object was to form a society in which those who wished could make together a systematic study of their chosen orders of insects. To further this plan the Society was divided up into sections so that any two or more persons interested in a common branch of entomology could form a section for the study of that branch.

Through the kindness of the Academy of Natural Sciences the Association was permitted to meet in their building, and at the organization meeting, Jan. 30, 1900, seven persons were present. At the second meeting scientific work was begun, sections being formed in Coleoptera, Hemiptera, Lepidoptera and Diptera. Since then a meeting has been held every Tuesday evening and in all deep interest in the work on hand has been shown.

Several corresponding members have been elected in various parts of the United States, and it has been thought, that in many towns and cities similar societies might be formed, which by uniting with the Students Entomological Association could carry on scientific correspondence and exchange with it, and with each other.

We, therefore, ask everybody to consider the possibility of forming a chapter in their town or city. Three or more persons will be sufficient. No dues will be requried, but chapters will be expected to send a report of the work done at least once in six months, also to subscribe for the Proceedings of the Associatiou in order that we may keep in touch with each other.

It is our desire to make the Association a permanent success, and every prospect seems to be that we will.

J. CHESTER BRADLEY, *Recording Secretary.*

At the February meeting of the Feldman Collecting Social, held at the residence of Mr. H. W. Wenzel, 1523 S. 13th Street, twelve persons were present.

Prof. Smith exhibited sketches of the apple plant louse, *Aphis mali.* He had stocked certain trees with these insects for experimental purposes, and from a badly infested tree he had gathered specimens continuously through 1898, and it was found on examination of the material that at least seven gene-

rations of one species were represented. The heretofore called *Aphis mali* is not that species, and the name should be applied to the one now under observation. The characters of the larva were described, the insect going through four moults prior to maturity. The larvæ have at first a 3-jointed antennæ, which are enforced by an additional joint at the third moult. Two series, winged and wingless, are found in the mature insects, the antennæ of each series showing peculiarities. The young of these two series show quite distinctive characteristics.

Mr. P. Laurent showed 102 species of Lepidoptera collected by him recently in the Wasatch Mountains, Utah, and Manitou, Colorado. Referring to the Argynnids, he stated that each of the several species represented were peculiar to different canons in these Mountains. Specimens of *Papilio rutilus* from the head of Big Cottonwood Canon are much smaller than the typical form. A specimen of *Admetovis* shown is probably new.

Mr. H. W. Wenzel exhibited specimens of *Holoparamesus ragusæ*, *Cartodere costulata*, *Corticaria serrata*, *Monotonæ quadrifoveolata*, *Cryptophagus croceus*, and *Mycetaea hirta*, all of which had been captured in the cellar of his house.

Prof. Smith stated he had received from the author species of *Argynnis cærulescens* Holland, described as a variety of *A. notocris*, and he had found on dissection of the genitalia that the so-called variety is an apparently distinct species.

Dr. Skinner stated that he could find no specific differences in the drawings of the genitalia of males of *Colias philodice* and *C. eurytheme*, which had been made by Prof. Smith from a series of both species.

Prof. Smith stated that he had received the abdomens only of these two insects without any indication of the species to which they belonged, and in his opinion there were two distinct species among them, although an intermediate series was found which is somewhat puzzling, but he believed the differences shown by this series may be due to the different method by which some of the specimens were prepared for microscopic examination. The subject was further discussed by Messrs. Smith and Skinner.

Mr. William Reinick and Mr. S. Harbeck were elected members of the Social. WILLIAM J. FOX, *Secretary*.

OBITUARY.

Hugo Soltau died last Summer in Europe, after having left this country in May on account of failing health.

He was born at Elmshorn, in the North German Province of Holstein, forty-four years ago, and never married. At the age of eighteen he came to America and had been for many years past in the employ of the drug house of Lehn & Fink, of New York, as traveling salesman. This occupation gave the opportunity of meeting entomologists and making collections in various parts of the country, especially in the South. He went as far west as Salt Lake and was well known to collectors in most of the larger cities and town of the Mississippi Valley and the Eastern States.

Mr. Soltau was a man of remarkable enthusiasm and possessed of much personal magnetism. The long enforced absence from his collections interfered with the acquisition of much technical knowledge of classification, but as a collector he had few equals. To his industry and skill science owes many a hitherto undiscovered species and the recapture of others which had been for years unknown except as relics of some historic cabinet.

Entomology has lost one of her most faithful followers, and many of those who remain will long miss his visits and the inspiration of his ardent interest.—H. F. W.

Andrew Bolter, probably the oldest, and one of the best-known entomologists in the West, died on March 18th. For forty-five years he was a resident of Chicago and was regarded as a high local authority.

Mr. Bolter contributed no books to scientific literature. He frequently, however, in response to requests for information from instructors and students of insect life, wrote lengthy letters on various phases of the subject, and his reputation for practical knowledge was widespread. He was a member of the Academy of Science in Chicago, New York Entomological Society and a corresponding member of the American Entomological Society.

From boyhood until a few years before his death, at 80 years of age, Mr. Bolter's chief pursuit outside of business hours was the collection of insects. His collection of beetles, butterflies and other insects of innumerable kinds, said to be one of the most complete private collections in the world, will probably go to the University of Illinois.

Mr. Bolter, who was born in Sigmeringen, left Germany because the Government resented his supposed connection with the revolution in 1848.

Alfred F. Chatfield died at his home in Lynn, Mass., Feb. 6, in his 84th year. "A native of England, he came to Albany when still a young man, and at first worked at the printer's trade, being employed for a number of years as a compositor on the Albany *Transcript*, in its day one of the famous papers of the capital. At the same time Mr. Chatfield carried on his studies in entomology and horticulture, a love of which he acquired in his native country. Nearly half a century ago he acquired property on what is now Chestnut Street, where he erected greenhouses, which he enlarged from time to time and conducted successfully for many years. The Chatfield nurseries are still very well remembered by most of the old and middle-aged residents of Albany. He was for many years an officer of the New York Agricultural Society and an active promoter and patron of the annual State fairs. He was a man of many accomplishments, possessed a companionable and kindly nature, and made many friends, who will learn of his departure with sincere regret.

Mr. John A. Dakin, an enthusiastic devotee and collector of Lepidoptera, died, after an illness of six days of spasmodic colic, at his home in Syracuse, N. Y., February 21, 1900, at the age of 48 years. In 1893, Mr. Dakin became interested in the study of Lepidoptera, which he persued until the time of his death, possessing then one of the largest collections of N. A. Lepidoptera in this section. By his death the entomological world loses a valuable and able devotee. He was a charter member and one of the founders of Onondaga Academy of Science and an associate member of A. O. U., and he will be mourned by a large circle of friends.

Prof. F. L. Harvey.—A little less than two years ago, the little band of students of the American Odonata had to mourn the death of Prof. D. S. Kellicott. Within a few days they have suffered another great loss in the person of Prof. F. L. Harvey, who died at Orono, Maine, on the morning of Tuesday, March 6, 1900.

Francis Leroy Harvey was born near Ithaca, N. Y., in 1850. His early education was received in the city schools of Ithaca. Later his parents moved to Independence, Iowa. He entered the Iowa Agricultural College in 1868, and was graduated with the degree B. S., in 1872. In 1874, he filled the chair of natural science in Humboldt College, Iowa, and in the same year took a post graduate course in botany at his alma mater. The Summer of 1877 he devoted to the Harvard Summer

course in mineralogy and geology. From 1875 to 1881 he filled the chair of theoretical and applied chemistry in the Arkansas Industrial University, and from 1881 to 1885 the chair of biology, mineralogy and geology in the same institution. He was in charge of Dr. A. E. Foote's natural history and mineral establishment in Philadelphia in 1885 and 1886. He went to Maine in the latter year to fill the chair of natural history at the University of Maine at Orono, and he held that position until his death. In addition, he was botanist and entomologist to the Maine State Experiment Station connected with the University. In 1890 the Arkansas Industrial University conferred the degree of Ph. D. upon him.

"At the University of Maine he was recognized as a hard and faithful worker along the lines of science, and as an instructor he was well liked and had the esteem of all the students coming under his department. As a resident of Orono he was looked up to as one of the leading men of the town, and many were his friends among the townspeople."

His untimely decease was the result of overwork, leading to nervous debility and melancholia. He is survived by a widow and five children, to whom we tender our deep sympathy.

His work on the Odonata began in 1890, since which time he carefully explored various parts of Maine in the study of its Odonate fauna. He made many interesting discoveries of species hitherto rare or unknown in that region, such as *Gomphus nævius* and *Scudderi*, *Neurocordulia yamaskanensis*, *Somatochlora septentrionalis* and the new *Ophiogomphus anomalus*. The last two months of his life, when he could work, were devoted to preparing the results of his collecting trips of 1899 for publication. These manuscripts he committed to our charge three days before his death.

The Thysanura and Collembola of Maine had also received much attention from him, and among them he had discovered a number of new species.

His writings on Economic Entomology were published chiefly in the Annual Reports of the Maine State College Experiment Station. The most extensive and important of these deals with the Apple Maggot (*Trypeta pomonella*) and appeared in 1889. We are informed that he also published on fossil and recent plants, on forestry and allied subjects.—P. P. CALVERT.